Textile World

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The following quotation is reproduced from an unsolicited letter we recently received from the manager of a very large and well known southern mill. Name will be given on request.

...for all good mea...

are aware, it is my desire to become one of the large users of "Industrial" products, and I feel positive that with such cooperation as we have received from your company we shall accomplish this desired end.

● This letter is very much like others that have been written by mill executives who take full advantage of the many services offered by Industrial Rayon Corporation. For every department in our organization—Production, Sales, Service and Promotion—has the single objective of HELPFUL COOPERATION. ◆◆ Yarns and knitted fabrics sold under the trade names SPUN-LO, PREMIER, DUL-TONE are meritorious products. They are manufactured under conditions of rigorous scientific control. They are backed by an intelligent program of Trade Promotion which smooths the way of finished commodities straight through to the consumer.

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Textile World

June, 1934

▼

Editor: DOUGLAS G. WOOLF

"This Is Code No. 1 . . . "

"This is Code No. 1—that of the first industry to answer the President's early observations on the benefit of the principles of NIRA, made weeks before the enactment of the law. Strictures on the good faith of that industry are unwarranted and unjust."

THE above is the concluding paragraph of General Johnson's statement announcing the settlement of the threatened cotton textile strike.

In the course of his comments the General felt compelled "to correct several inaccurate statements which appeared in news dispatches yesterday and which were attributed to officials of the United Textile Workers." Among other things, he pointed out that:

"A statement that the administration of the Cotton Textile Code 'through lack of enforcement has brought it to a point of pre-code conditions,' is simply without foundation in fact. . . . .

"The statement that wages 'have been forced down to lower than ever before' is equally unfounded. The very opposite is true."

Many observers have a tendency to condone the use of "inaccurate statements" (to use a gentle term) in employer-employee disputes. It's just a part of the trading which must go on before a settlement is reached, they argue; neither side really expects to be believed 100%.

▼

That attitude, in our opinion, is completely wrong. An "inaccurate statement" in itself may seem harmless enough, but its effect may be potentially devastating.

When Thomas F. McMahon tried through such statements to incite several hundred thousand workers to what would inevitably have been economic suicide, he was assuming a responsibility which should appal any thoughtful man.

"The [curtailment] order is nothing more nor less than a 25% cut in wages for the worker, not temporary but permanent," announced Mr. McMahon on June 1.

"Labor representatives in the present conference admitted the necessity for this [curtailment] action and that the strike was not against the order at all, but only to secure a 33⅓% increase in hourly rates of pay and certain other demands," announced General Johnson on June 2.

In other words, the General caught Mr. McMahon in the act of trading.

Well, in the first place, that's old stuff. It was a pet trick of some of the labor leaders of years ago to resort to this type of specious economics.

What were the facts in this case? Demand for cotton textiles had started to decline and the industry faced a summer of continued dullness. Decreased production was inevitable. Rather than permit unintelligent glutting of the market by certain producers, followed by inevitable price collapse and complete closing of many mills, the industry took steps to make this curtailment an orderly one, and fair to all mills, large and small.

That's what Mr. McMahon called a wage-cut. Well, then, so is every decrease in production schedules effected in every industry.

But, of course, Mr. McMahon was only "trading."

▼

The importance of this matter extends far beyond the confines of the cotton industry. It is a fundamental issue.

While an attempt is being made to cure some of the country's economic ills, and to devise a saner order of things, what can be done to restrain a man or an organization from toying with the destinies of hundreds of thousands of people, merely to improve his or its "trading" position in a drive for cash memberships?

When we assumed the editorship of TEXTILE WORLD, we announced as part of our policy that we would not condemn union activities merely because they were the pursuits of organized labor, but that we *would* condemn any union activity which was not based on fundamentally sound economics. We have tried to observe that policy. . . . . In the present instance, we regard the action of the U. T. W. not only as economically unsound but socially inimical. Consequently we cannot condemn it too strongly.

HOW COTTON TEXTILE INDUSTRY VIEWS

Strike Settlement

Text of Settlement

I. Strike order to be countermanded without prejudice to the right of labor to strike.

II. One representative of employees of the Cotton Textile Industry to be appointed by the Secretary of Labor to Labor Advisory Board.

III. One representative of employees of the Cotton Textile Industry to be appointed Labor Advisor to government members on Cotton Textile Code Authority.

IV. Authority of Cotton Textile National Industrial Relations Board to be defined by Administrative Order to include all subjects mentioned in VII hereof. Membership of said Board to be increased by one representative of employers and one representative of employees from the cotton textile industry.

V. If these conditions are accepted I will urge the Cotton Textile Code Authority to accept and agree to abide by the foregoing amendment to the Industrial Relations Board provisions.

VI. Investigation and reports upon the following questions to be made by N.R.A. Division of Planning and Research in conjunction with revised Industrial Relations Board:

(a) What productive machine hours are necessary to meet normal demand (within 10 days)?

(b) What increase, if any, in wage rates is possible (within 14 days)?

(c) Have wage differentials above the minimum been maintained (within 30 days)?

(d) What changes have taken place in man-hour productivity?

(e) The Division of Planning and Research to cooperate with the Industrial Relations Board in completing its studies of the work load for the use of the Board in dealing with all controversies over the stretch-out or specialization system.

VII. The Cotton Textile Industrial Relations Board will continue to handle all pending or future claims and complaints of discrimination, representation, inaccurate entries on pay envelopes, unwarranted reductions in classification, increased stretch-out, alleged violations of Section 7 (a), and all other alleged violations of the Code.

VIII. The seasonal character of the cotton textile business and the necessity for temporary reduction in machine hours from time to time is recognized by the representatives of the labor organizations.

SELDOM have we encountered such unanimity of opinion in any branch of the textile industry as that expressed by cotton manufacturers and sales-agents with regard to the strike threatened by the United Textile Workers, and averted after a conference at NRA headquarters in Washington June 1 and 2.

The following sums up the comment we heard:

1. The strike threat was insincerely launched; talk of the curtailment program as a "wage-cut" was misleading, to put it mildly.

2. The threat was stupidly timed. The industry had been scratching hard for business—and was in the mood to shut up shop if the strike materialized.

3. General Johnson's statement announcing the settlement of the strike, was not only a vindication of, but a glowing tribute to, the cotton textile industry.

4. On the other hand, the General was forced to deal harshly with the U. T. W. in the same statement.

5. The U. T. W. got practically no concession of any importance out of the settlement but is making a big noise about it marking "the beginning of a new day for cotton textile workers": this to impress its members and prospective members with the job the U. T. W. has been doing for textile labor.

6. One of the principal needs revealed by the episode was accurate information as to number of union members in the different branches of the industry. Loose talk of 200,000 or 300,000 members was heard from the labor side. This is no longer information which unions can keep secret, any more than is so much of the data which individual firms formerly regarded as sacred but which they now submit to a Code Authority or the NRA. Equitable representation of workers demands that the extent of union affiliations be made known. Consequently the news that an audit of textile union memberships will be taken is regarded in the industry as the one constructive development which came out of the clash.

The above summary does not include the more vitriolic opinions encountered.

Naturally, there is always far more anti-union than pro-union sentiment among manufacturers. However, there also are always groups of the more liberal mill-executives who are lenient, and almost sympathetic, toward union activities. This time, such an attitude was completely lacking. The liberals had nothing good to say about the tactics employed by the U.T.W. in trying to stir up a general strike at a time when the fight against unemployment had been won only partially.

The following dispatch from our New England office summarizes reaction in that section:

Looking to the future, there are two things to be considered. First, the actual strength of the U.T.W.; and, second, the extent to which members would have responded *if* the strike had not been called off.

With respect to the first point: Amoskeag is practically 100% unionized; about half of New Bedford's 24,000 textile workers belong to the with the U.T.W. and these skilled craft unions affiliated control the situation; in Fall River there are local unions, not particularly friendly to the U.T.W., and the latter organization has only a few relatively unimpotant craft unions; in the Rhode Island district the U.T.W. has enough strength to cause some trouble; in districts such as Connecticut, the situation is mixed, with some mills organized to a degree and others practically not at all; in Maine the U.T.W. has very little strength.

With respect to the second point, it is anyone's guess concerning the extent to which U.T.W. members would have responded. Such things depend more upon psychology than anything else and are impossible to predict in advance. Two factors which may be positively stated, however, are that there was no general feeling of unrest on the surface and that the local unions, even though affiliated with the U.T.W., still must vote yes or no on a strike question.

And the following from our southern office:

The writer made a survey of the situation and interviewed manufacturers, operatives, labor leaders, newspaper men, textile machinery and supply salesmen, engineers, members of industrial relations boards and others, all deeply interested in the outcome of the affair. There were as many different opinions as prognosticators.

Had the proposed strike taken place, the following is the opinion of many: "In every industrial center, certain plants, with unstable labor conditions, would have struck; in the better organized plants, there would have been practically no walk-outs." Labor leaders and organizers contend that every plant in the South would have struck immediately, even though some of the mills have very few union members.

As this report goes to press, manufacturers are sitting tight with little to say, merely watching. State industrial relations boards are striving valiantly to settle active strikes, and prevent future trouble. The more radical of the labor leaders are continuing, with renewed vigor, their attacks on manufacturers and on certain members of the State and national industrial relations boards.

Regardless of what may be going on beneath the surface, most of the mills are now running, and the average worker is satisfied to take a 25% reduction in hours and wages, for a few weeks. It is better thus, operatives say, than no work and no wages at all.

Wage Differentials

ARE BONE OF CONTENTION IN WOOL INDUSTRY UNREST

(From TEXTILE WORLD'S *New England Office)*

THE labor and wage situation in the woolen and worsted industry at present is just about as clear as a tank of Mississippi River water scooped up at flood time. Before plunging in, therefore, it is best to go back and determine some of the forces at work which have contributed to the unsettled condition.

It was not until the latter part of 1933 that the United Textile Workers of America, somewhat bewildered by NRA developments, turned its attention to the woolen and worsted industry specifically. There had been the usual membership drives prior to that time, but no evidence of any plan. About the turn of the year agitation became general concerning wage brackets and the U. T. W. decided to fight for the universal maintenance of suitable differentials for the various classes of skilled workers.

In pressing for minimum wages for the skilled classifications, the union had the tacit approval of a number of manufacturers who felt that the existence of certain wage rates varying more than 50% among different mills made for bad competitive conditions in the industry. It was believed that certain mills should not be allowed to take advantage of local conditions and make the minimum wage pretty much the maximum wage, while competing manufacturers maintained previously existing differentials.

The community of interest led to a certain feeling of cooperation the first part of the year between the more progressive manufacturers and the more realistic union leaders. Apparently both felt that it would be possible to work out together a mutually satisfactory scale of wages and have it put into effect throughout the industry by means of a code ruling. In the meantime, the union would bring pressure to bear on such plants as were the worst offenders in not maintaining differentials. Such an assumption explains why the union, until recently, has been particularly active in a number of small-town mills. Under ordinary circumstances, a labor union will concentrate its attention on the large centers, but in this particular case it appears that small-town mills were regarded by organized labor as the chief offenders.

The hopes of a number of manufacturers and labor leaders that matters could be settled cooperatively met with a set-back at the March 1 meeting of the National Association of Wool Manufacturers. The committee on wage brackets brought in a recommendation that a joint committee be appointed, composed half of representatives of the manufacturers and half of representatives of labor, which would establish minima for the various brackets, effective upon adoption by the committee. This proposal was voted down and a wage committee comprised entirely of mill men was set up to propose rates which would later be discussed at a general meeting.

Although the wage committee has had several unofficial conferences with labor leaders, as time has gone on the hope of reaching a mutually satisfactory set of rates has grown dimmer. The tactics of the U. T. W. have changed during the last two months as the chances for cooperation have waned. Activities are now concentrated on the large centers and large mills. The set of wage differentials presented to the N.A.W.M. on April 11 is obviously on the old basis of "horse-trading." In other words, something has been tacked on so that there will be room for trading when discussions are held with manufacturers.

Although at one time the U. T. W. voted that the N.A.W.M. should reply to the various points at issue by May 25, no reply was forthcoming on that date and no reply had been made up to time of going to press. It is known that agencies of the N.A.W.M. have been studying the whole problem of wage brackets and machine loads, but just what will come of it is not certain at this time. It seems obvious, however, that any rates proposed will be below those mentioned by the union.

In the meantime, the U. T. W. has made plans for a general meeting in Worcester, June 16, of delegates representing the woolen and worsted members, where further action will be discussed.

Such is the situation today. Although it looked for a time as though there was a possibility of wage rates being worked out on a factual basis by manufacturers and labor leaders jointly, conditions at present do not point to any such development. Future action will probably be along the lines of labor asking for a lot and the manufacturers giving as little ground as possible.

All sorts of wild guesses have been made concerning the extent to which the industry has been unionized.

One union member out of three workers is a guess on the top side. Such figures, however, are not particularly important since it is generally admitted that union labor will be strong enough so that it must be reckoned with when the woolen and worsted business gets better. With business kicking along at the bottom just now the union is in no position to do any dictating or even swaggering. For every job there are two waiting to grab it.

It is expected that business will pick up next month and that by September production should be fairly high. Many feel that unless the wage differential matter is straightened out by that time there will be serious labor disturbances.

Labor Unions . . .

SOME PLAIN SPEAKING ON A "LOADED" SUBJECT

By B. B. Gossett
President, Chadwick-Hoskins Co., Charlotte, N. C.

If there is one subject from which the average manufacturer shies away in public speaking, it is labor unionism. And yet, there is no one subject on which plain talk is more needed. Whether a man's views be ultra-conservative or violently radical, he can accomplish nothing—but in fact can do much harm—by trying to ignore one of the major controversial problems of industrial relations.

Mr. Gossett cannot be so accused. In a recent address before the Great Council of the Improved Order of Red Men of the State of South Carolina—an audience, incidentally, composed largely of what might be termed the labor element—he said what he thought, and said it plainly. We are printing this, in part, herewith.

Probably some will disagree with Mr. Gossett—and often for opposite reasons!—but none will deny his courage.

Plain speaking is a public service.—*Editor*

IT is my purpose to speak plainly about some things. If you will pardon a personal word, I may say that I have always been classed as a liberal in the cotton textile industry. I have for years contended—both publicly and privately—that no man should be refused employment because he is a member of a union of any kind. The mills with which I am actively connected have practiced what I have preached. As far back as February 1920, in an address before the American Rotary Club, I emphatically asserted the right of labor to organize. In many subsequent addresses, but more notably one which I delivered before the faculty and students of North Carolina A. & M. College in December 1929, I re-affirmed this statement. At that time it was given wide publicity by the press. I am making these points in order that you may see and better understand what my position was in this connection long before the NRA was ever heard of. I have also publicly and privately on many occasions advocated many of the things which are now a part of the National Recovery Act . . .

But I do here today wish to most solemnly warn you of some of the grave dangers confronting us as a result of unwise, unsound and selfish agitation on the part of some so-called leaders who have come among us from other sections of the country and who are creating unrest wherever they go. Recently in testifying before a committee of the United States Senate a labor leader from another section of the country stated that while the textile code had increased the minimum wage in the South (mark you, he said in the South) from $8 to $12 weekly, skilled workers generally have been cut down to the minimum. Now most of you know of your own knowledge that this statement is without foundation in fact and I can most emphatically state that the minimum wage has not become the maximum wage in the cotton textile industry generally and certainly not in the southern branch of the industry, including our own State of South Carolina.

There may be and doubtless are a few mills in the different sections of the country who are not living up to the code just as there are some people who are violating the laws of the land. This has been so since time immemorial and it will always be so unless human nature undergoes a complete change. I can only say that I have no sympathy for or patience with those who are not trying to live up to the letter and spirit of the code wherever they may be. All such offenders stand indicted in the eyes of the public and cannot be too strongly condemned. I favor vigorous prosecution of all wilful violations of the NRA. . . . .

Despite many misleading statements that have been actively circulated, the NRA was not devised to give any undue advantage to any particular group, class or individual; on the contrary, it was devised to give every individual, every faction and every group a square deal and no more.

There has been much discussion and apparently considerable misunderstanding about Section 7A of the National Industrial Recovery Act so it will be interesting at this point to quote the exact words of the President of the United States:

"After many days of conferring in regard to the principles of employment in the automobile industry the following statement covers the fundamentals: Reduced to plain language section 7A of NIRA means—(A) Employees have the right to organize into a group or groups. (B) When such group or groups are organized they can choose representatives by free choice and such representatives must be received collectively and thereby seek to straighten out disputes and improve conditions of employment. (C) Discrimination against employees because of their labor affiliations, or for any other unfair or unjust reason is barred."

It seems to me as clear from this interpretation that there is no edict requiring membership in one union or another, or in any union at all for that matter, and that collective bargaining as recognized by the code can be union or non-union as the employees may determine.

The rights of labor should and must be respected. This applies to individuals as well as groups of any kind, regardless of what their affiliations may be. In short, all workers are guaranteed their full rights under the NRA. This embraces those who may be members of an organization of their own choosing and it also includes those who are not members of an organization and may wish to act for themselves individually. Where members are obtained by fair educational efforts and on their own initiative no manufacturer has a right to object . . .

The workers of the country have the sympathy of all fair-minded people in every effort that is advanced to give them absolute justice in regard to wages and working conditions. However, in trying to bring about an improvement in these conditions, one should never lose sight of the fact that if labor is to be made self-supporting, industry must also be self-supporting. No man's job in the mill is permanent and safe unless the mill can be operated at a fair return on its investment. The only way this can be done is for every operative to cooperate to keep cost down, to prevent waste, and to have personal interest in the welfare of his company.

Idle Hands . . .

MAINTENANCE AND OTHER JOBS FOR LAID-OFF OPERATIVES HELP CAPITALIZE CURTAILMENT

WHEN a mill faces shutdown or curtailment, the management might well bear in mind that in all probability the machinery will be whirring full tilt again at some not-distant date, and that it has an opportunity during the idleness of the plant to prepare for improved efficiency and lower cost of operation. Numerous improvements are bothersome or even impossible to accomplish while the plant is running full.

Slack times also bring idleness to operatives. It is often worthwhile to employ such operatives on these odd jobs, both for the humanitarian reason of supplying them with a small income and because the mill's property may thus be conveniently improved at reasonable cost.

Many upkeep jobs usually performed from time to time may be anticipated when the wheels cease to turn, and the money spent then is money saved at some later date. It is fair to judge the usefulness of any proposed job upon the ultimate money return to the mill. Obviously if the plant is in better shape to operate efficiently when fuller production is resumed and the cost is not out of line with such gain, the job may wisely be undertaken.

The jobs given on the check list below are more suggestive than complete. Every department in the mill has specific items, too numerous to mention, which warrant attention. All the listed jobs are not applicable to every mill and some would require a survey to discover whether they are necessary. Most of them could be conducted by the regularly employed staff of any mill, acting under the direction of an overseer or master mechanic. Investigation may disclose a number of good painters, mechanics, carpenters and other artisans among the help, not to mention cleaners, movers, wreckers, etc. Each of the more able operatives might have two or three helpers assigned him for the purpose of a team attack upon such jobs as the management feels should be undertaken. Subjects below are broadly grouped for convenience.

Production Equipment

Protect machinery against depreciation during idleness.
Install new machinery and/or devices.
Revise machinery layout and drives.
General overhaul, including check on condition with view to later replacement.
Repaint machinery.
Replace worn parts.
Improve bearings by replacing plain with anti-friction or oilless, and bush such bearings as run on castings.
Install machine guards and other accident preventives.
Install automatic control systems.
Remove old machinery and prepare for sale or scrapping.
Conduct mill experimentation with devices, adjustments or formulas which cannot readily be tried out in the course of regular production.
Align shafting and clean drip pans under bearings.
Repair or replace worn belting or take up slack.
Repair electric motors and wiring.
True-up machinery.

Materials Stocks, Supply Stores and Mill Office

Make or check inventory of supplies; ditto for raw materials and finished goods.
Cull out and discard or sell items no longer useful.
Set up more efficient stock room for supply parts; ditto for raw materials, goods in process and finished goods.
Check stock of used parts for defects, repair or discard.
Make up such spare parts as mill is equipped to make.
Revise stock room or mill office layout.
Set up records of machine condition which may be continued when plant starts up.
Compare cost records of present equipment with those estimated for new equipment.
Consider routine on cost finding, production control, billing, etc.; investigate other systems, and if simplification or improvement is possible prepare office staff to operate new or revised system.
Plan merchandising campaign for finished product.
Prepare samples.
Study possible new products.

Mill Buildings, Etc.

Establish a watchman system.
Paint, inside and outside.
Repair roofs and skylights over productive equipment.
Repair foundations, walls, floors, etc., particularly with view to protect against rot, insect damage, etc.
Putty loose windowpanes.
Put stairways, elevators, ramps, conveyors, mill trucks, etc., in good repair.
Make general clean up.
Check fire-protection equipment and improve same after study of fire hazards.
Survey plant for accident hazards.
Study lighting efficiency.
Install plant intercommunication system.
Tear down old buildings where not needed.

Mill Power House

Overhaul engines, turbines and/or generators.
Paint pipe lines for identification.
Research on new power plant ideas.
Repair or apply steam pipe insulation.
Repack glands on pumps, valves, etc.
Fix leaky joints in steam or water lines.
Replace fire bricks, worn stoker parts.
Clean inside of tanks.
Revise switch and instrument boards.
Modernize equipment.

Mill Grounds, Outdoor Properties, Village, etc.

Clean up mill yard.
Repair, repaint or build fences.
Plant lawns and set out shrubbery.
Paint and renovate village houses; protect against rot, termites and other elements of decay.
Sponsor clean up work by employes; also encourage them to garden.
Encourage recreational activities, such as baseball and other sports; possibly build baseball diamond and bleachers.
Operate course of training lectures for employes.

The Editor Says:

APPARENTLY some one has been telling certain individuals in the NRA some of the facts of life. We hope the news was broken gently.

At any rate, advices from Washington prior to the approval of the cotton textile curtailment program indicated that these individuals had made the remarkable discovery that such programs tend to increase the prices of the products involved. Ergo, they argued, the NRA must step in to protect the consumer; to see that the public interest is served. Ergo, again, such curtailment programs will not be approved until NRA is convinced that a real emergency exists; and possibly not until a public hearing has been held.

Frankly, we believe this "consumer" and "public interest" stuff is being over-done. It was a good line at first, but it's becoming tiresome.

Who are the consumers? Groups of people such as those who work in textile mills and those who employ their capital in textile mills. What is the "public interest?" The greatest good that can come to all of those groups.

The NRA codes were set up with that in mind. The cotton textile code arranges, for example, for a certain exchange of privileges between capital and labor so that each side may prosper, instead of stagnating as in recent years. Thus far, it's worked pretty well for both sides—all statements to the contrary notwithstanding.

If this self-government as practiced by the cotton textile industry is to be so crippled as to demand a public hearing before adjustment to rapidly changing supply-demand status can be effected; or if the industry must be reduced to the "emergency" of losing its shirt before it is permitted to do something about it, then the NRA plan of self-government will fail.

We are glad the curtailment program was approved, and without too serious delay. We hope this same battle will not have to be fought every time such action is proposed.

❖

What? Higher Prices?

IN FACT, the reasoning of certain NRA officials on this curtailment matter is similar in nature to much of the reasoning in the Darrow committee report, which so aroused NRA ire.

Here's a typical Darrow statement:

"Complaints come from small businesses that they cannot pay the minimum wage set by the code. Analysis shows that this difficulty arises usually out of the increased costs of production which have their root in higher prices for raw material (one of the evidences of monopolistic tendencies) and hence the complaint against the wage scale cannot accurately be attributed to the mere desire of the 'little man to chisel wages'."

What we object to in this statement is the calm assumption—so calm that it is merely expressed parenthetically and casually—that higher prices for raw materials are one of the evidences of monopolistic tendencies.

Is memory so short? Has Darrow, or whoever wrote his report, forgotten the tragedy of the last four years when the products of every man's hands or head brought him a mere pittance? Because prices have gone up beyond those starvation levels, must Darrow shout "monopoly"?

Bunk!

❖

Et tu, Nystrom!

UNFORTUNATELY, we heard an economist of high repute make the same mistake last month at a New York Board of Trade meeting.

During the course of a thoughtful criticism of the price-fixing provisions in certain codes, and particularly in the construction and building supply codes, Dr. Paul H. Nystrom cited as an example of their results the fact that he had built a house a year or so ago for about $12,000 and that today it would cost $2,000 or $2,500 more.

That proves nothing. We don't know anything about Dr. Nystrom's house, of course, but we do know that almost anything purchased a year or so ago was too cheap, and was sold at the tragic expense of one or more (usually more) persons engaged in its production and sale.

❖

Read 'em and Weep

GETTING back to Darrow, which we do reluctantly because by now so many words have been written about him, we believe that the high-water mark of stupid and destructive criticism is reached in the following statement in his report:

"The opinion is forced upon us from what we have heard so far that fair competition is merely a resounding and illusory phrase. There is, in fact, no such significance of general acceptance, and under existing conditions there can be none. What the powerful producer calls fair, his weaker rival fiercely denounces as most unfair; and there is no way to reconcile the difference. All competition is savage, wolfish and relentless; and can be nothing else. One may as well dream of making war lady-like as of making competition fair."

From this statement we must go on to conclude that, since perfection is never reached in any phase of human endeavor, we should give up all human striving toward that goal.

Darrow may believe that, but we are thankful we don't!

❖

A Real Job

TO US, one of the real surprises of the last few months was the remarkable attendance at the two conferences held by the U. S. Institute for Textile Research: one on wear and wear-testing March 24, and one on warp-sizing May 11. We would have guessed, in advance, that only a handful would attend. Instead, there was a crowded meeting-room in a New York hotel for each conference: the first, lasting practically all day on a Saturday, and the second competing against a beautiful spring day.

We believe each of these meetings will develop actual results in the field covered by it. Whether it does or not, however, the Institute has performed the seemingly impossible task of drawing out articulate interest in research problems. That is a step forward which, in itself, represents real accomplishment.

❖

About That Slump

BY NOW, we presume few textile manufacturers have any doubt of the recession which we discussed in the leading editorial last month. Wool manufacturers, of course, have been familiar with it for some time. Wool consumption in the first quarter of this year was the smallest in any corresponding quarter in the last 10 years. Other branches of the industry were not to be slighted, however; they caught the infection as time went on.

It's too bad that we must have these slumps. But life is like that. And we can't see anything particularly alarming about this one. The industry had been going along at a pretty good pace; a digestive period was in order. General business, too, had been making a remarkably quick recovery; an interim of hesitation was inevitable, sometime or other.

We do not have to yield any of the real ground we have gained. Barring futile labor wars, and barring equally futile panic on the part of manufacturers, there is no reason why we shouldn't go forward, from where we stopped, in the late summer or early fall.

So, once more, don't get panicky!

"*The Little Red Book . . .*"

IS IT JOINING THE LITTLE RED SCHOOLHOUSE AND OTHER OBSOLETE INSTITUTIONS?

By Jack Card

Editor's Note: ***The author of the accompanying article is an old, if not valued, contributor to*** **TEXTILE WORLD.** ***He has not bothered us for several years. Possibly the depression has at last reached him. Despite his unexplained absence, we have decided to give him another chance.***

JUST recently, I have experienced a great shock. My life has been completely disordered.

I have decided I am no longer a young man. I have reached, almost unawares, that state which my children call old age, but which our generation refers to as the "prime of life."

One of the things that has brought me to this tragic realization is my present attitude toward old institutions. I formerly had the greatest scorn for anything peculiar to the late-Victorian era, in which my parents thrived. Now, I find that I possess a sentimental reverence for events and landmarks of the pre-World War era, which was the period in which I blossomed into glorious manhood. I can even weep at references to the little red school-house, the old oaken bucket, and similar institutions of the past. (I almost included the old corner saloon, but this morning's paper says the Governor of my State, New York, has just signed a bill authorizing drinking at bars. Although there is an express declaration, in the law, against "what were commonly known and referred to as saloons," the distinction is a little too fine for me. Consequently I must regard the saloon as not obsolete, but renascent.)

Pardon the side-excursion. I'm coming to my thesis now. When one writes on space rates, it's sound economics to sort of sneak up on one's thesis, if one can get away with it.

Speaking of age-old institutions, I am reminded of the "little red book." In fact, Joseph Bancroft reminded me, when he spoke at the warp-sizing conference held May 11 by the U. S. Institute for Textile Research. He recalled that, some score or more years ago, he had tried to get the size formulas from the various gray goods mills whose fabrics his company was finishing. He found that these formulas were held in great secrecy; in fact, only four mills gave them to him, and then under the most rigid rules of confidence.

That, of course, made me think of the "little red book." I presume all my mature readers know what this is. For the benefit of the youngsters, however, I'll explain.

Taking the case of the finishing industry as an example, I recall that, in a plant with which I was connected 20-odd years ago, the "little red book" in the foreman's pocket represented the real brains of the organization. This was true with the boss-starcher, boss-dyer, printer, and most of the department heads.

This little book contained the formulas of the department concerned. Moreover, it was the property of the foreman himself, not of the mill. It was his "stock in trade."

And, boy, how he did play on it! It seemed to give him a right to be indescribably nasty to everybody in the plant from the boss down—and particularly to the chemist, which was the variety of insect which I happened to be. A chemist—especially a young chemist—was just a college prig who knew nothing about textile finishing, but who went snooping around the plant trying to find out secrets accumulated during a life-time of honest toil. And so on, and so on. Maybe you know the line.

Well, when Mr. Bancroft mentioned the secrecy accorded to size formulas some 20 years ago, I began to wonder how much this situation has changed in the intervening years. It had started to change when I deserted the mill game 18 years ago. Here's a true story:

Somehow or other, the boss had entrusted me with the job of developing cost data in the different departments. At that time, I thought that this meant he had recognized the spark of genius smouldering in his young chemist, and was trying to fan it into life. Looking back, I am inclined to believe he recognized the peril to life and limb which this job entailed, and decided that he could spare me better than anyone else in his organization.

At any rate, I began some official snooping in the different departments. And, bright boy that I was, I early decided that one must have formulas if one was to have cost data. So, says I to the boss, let's have each foreman put all his formulas on cards for reference. O. K., says the boss—concealing, I am now sure, a smile—go get 'em.

And then the fun began. I can't remember all the details. I do remember, quite vividly however, the day when the boss starcher removed me from the starch-room with a well-directed kick in the seat of the pants.

I also recall that the foreman of the print shop resigned his very lucrative position rather than let anyone else see his formulas. I remember, too, that I had to guard continually against "mistakes" which cropped into the formulas when finally and grudgingly given me. In fact, the situation in the dyehouse was so bad that I had to serve as second-hand for several weeks to check them up.

But finally the "secrets" were recorded and foremen went from the business of black-mailing to that of running a department efficiently. Today, of course, that company wouldn't consider going back to the secrecy days.

What I wonder is, how many mills and finishing plants still consider the content of their sizes, their starch-mixes, and their dyebaths, "secrets"? Also, how many permit their department heads to so regard them, and as their personal property?

Here is how these "secrets" were discovered—usually: A starcher had to match a certain sample, let's say. All right, he started to dump things in; a dash of this, a bit of that, and finally the mix gave him the finish he wanted. That formula was duly recorded in the "little red book." And hundreds of these accidental formulas represented all the scientific background which the starch-room at that plant possessed.

How common is this today? I'm asking for information.

P. S.—Address me care of this publication. It will help my standing with the editor.

New Selling Viewpoint

REQUIRED FOR BEST MERCHANDISING OF THREE-CARRIER HOSIERY

BENEATH all the present hubbub in the hosiery industry as regards price minimums, market breaks, cost definitions or what will you, there is one issue on which leading companies find themselves in practically unanimous accord; that is, the permanent significance of the ringless development as a major merchandising asset. With this type of stocking now four months on the market, its production estimated at from 15 to 25% of the entire full-fashioned output of the country, it is possible to view in perspective both the immediate problems that it has created and also its long-distance prospects.

Let it be stated first that ringless hosiery is here to stay. In its fundamental value the three-carrier development ranks with the picot top and the curved French heel. Like these, doubtless, its progress will be marked by a continuity of improvements for some time to come, calling for many merchandising adjustments. Valued in sales terms, the new development is one of the most important in years. Promotional experience with ringless during the last four months has shown convincingly that women want clarity in hosiery and are ready to pay for it; in numerous cases they consider it more important than fineness, and will prefer a coarse-gage stocking which is clear to a fine-gage number which has numerous rings or shadows.

It was inevitable, considering the significance of the new development, that the merchandiser of ringless hosiery should find himself beset with many problems, some essentially his own and some involving the production department. Chief among these issues are: First, the need for new methods of merchandising to sell the three-carrier stocking; second, the backward production of ringless due to delayed installation of new equipment; third, disposal of single-carrier stocks; and fourth, the competition of cheaply-made ringless.

The question of developing new merchandising methods, which is obviously the most important, has three main sub-divisions: First, the creation of sales terminology which is properly descriptive of the three-carrier stocking; second, changes in display methods; and third, the need for education of selling personnel in both manufacturing and distributing divisions to offset the dangers inherent in promotional use of the term "ringless."

The loose and ill-considered publicity of the word "ringless" during March and April built up a heap of trouble for the mills, and it created a problem demanding immediate action. Toward the end of April, manufacturers awakened to the issue and began rephrasing their promotional material, avoiding this term; by that time, however, the stores had adopted the word and now manufacturers are busy educating their outlets to use other terms.

The point to be kept in mind is that the new hosiery is *not* 100% ringless; the employment of this term is inaccurate and inadvisable and simply serves to incur consumer resentment. The three-carrier attachment greatly reduces the number of rings; if inspection standards are especially high, it may reduce them to a negligible point; however, there is no complete elimination of the shadow effects. Therefore, any dealer who sells the line with a "ringless guarantee," as some have done, is leaving himself open to a kick-back from his customer.

With the aim of avoiding overclaims and at the same time adequately stressing the qualities of the stocking, mills are promoting it on the basis of increased clarity and transparency, and are coining a wide range of adjectives to dramatize these sales points. They are also giving attention to the development of new types of display which would best demonstrate the clarity of the hosiery. In this regard, certain stores have progressed further than the mills; for example, one leading New York store uses a stand two feet high and two feet long equipped with a crossbar on which the new stockings are hung flat; the stand is so placed that the light shows the clarity of the hosiery. So far there has not been any general development of displays which would contrast the three-carrier with the single-carrier numbers, but merchandisers of both stores and mills are working in this direction. It is not believed that the stand will supplant the foot-model for display, since proper lighting is the main requirement and the foot-model can demonstrate the lack of shadows in a ringless stocking at least as well as the flat stand if the position is right with respect to light.

The chief point of the three-carrier development as regards merchandising is that it demands a complete revision of approach; clarity is the key thought and it opens a wide range of new sales possibilities which hitherto have been denied to the full-fashioned industry. What is the actual sales value of the improvement? This question was put to various hosiery merchandisers, and the consensus was that the development added 10 to 15c. to sales value of each pair in the store. The present average price of good-quality, three-carrier stockings is $1.25 retail, and manufacturers estimate that the minimum retail price at which the stocking could sell with adequate margin for all divisions would be $1.00. There is no longer any question as to the market prospects for the new line; indications are that during the summer demand will exceed supply. The prospects for fall are

especially significant, as that season brings increased demand for dark colors, and it is in dark colors that the improved method of manufacture shows at its best; therefore manufacturers expect ringless demand to reach a high point next winter.

The lesson learned by mills in making three-carrier hosiery during the pioneer months have been utilized to improve the product, which has resulted in increased consumer acceptance. The prevalence of the "washboard effect" greatly hindered sales during spring; manufacturers of higher quality lines now report that this defect is gradually being eliminated, thanks largely to improved inspection methods. The high cost of manufacture presents a serious merchandising problem, since it necessitates higher prices, and there has been strenuous resistance by distributors to the new levels. It is recognized of course that the only answer lies in intensified educational salesmanship to familiarize wholesalers and retailers with the added sales value of the new hosiery.

With respect to increasing the total output of ringless merchandise, manufacturers report this is being delayed due to slow installation of new equipment. Mills have no difficulty in getting the machinery and a large percentage of the industry is now supplied in that respect; however, the call for technicians to install the equipment and instruct operators on it has so far exceeded the capacity of the machine manufacturers' service departments that many hosiery mills are backward in getting into volume operation. Indications are that ringless output will rise rapidly during the summer and that in fall it may represent 50% of the total full-fashioned output. Mill men look for this increase to continue through next winter and some go so far as to predict that the summer of 1935 will find single-carrier hosiery pretty well out of the picture, except in 39-gage lines and a few divisions of the 42-gage field.

One important advantage of the delay in installing new equipment is that it allows hosiery mills more time to dispose of their stocks of the single-carrier merchandise. This clearance question is one of the most difficult issues of the transition period. The last three months have seen abundant dumping of non-ringless hosiery stocks, much to the detriment of prices; indeed, there is no question that this was at least partially responsible for the March-April price break in the 45-gage lines. At the beginning of May there were still heavy stocks of the old type in manufacturers' and jobbers' hands. Market tone on single-carrier hosiery was somewhat firmer in the middle of May, and there were hopes that an orderly and not too unprofitable clearance might be effected.

With respect to cheapening of the three-carrier merchandise the situation has improved somewhat, but the evil is still far from eliminated. Mills resort to all manner of dubious methods to cut costs of manufacture. One expedient popular for a time with mills selling to chain shoe stores, was to use raw silk below the grades which experience had shown are necessary. However, the merchandise produced was so obviously inferior that this practice has been largely abandoned. Other mills try to cut costs by using the three-carrier device on the leg and single-carrier on the foot instead of using three-carrier for the entire operation; here, too, the difference is noticeable, especially so since the transfer point of the foot is the part of the stocking most likely to give the wearer trouble and therefore is the part most closely examined at time of purchase. Hosiery produced by these methods, together with a quantity of "washboard" hosiery, has been actively marketed as "ringless" at 79 to 89c. retail, and it has tended seriously to hurt the prestige of the new type of stocking. At the end of May, manufacturers were hoping that action toward fixing a price minimum on three-carrier merchandise might be taken by the Hosiery Code Authority in time to prevent any deep-rooted prejudice among consumers against the new development.

Inquiry as regards production cost of three-carrier shows a wide diversity of opinion; some claim that the cost is 25c. per dozen higher than single-carrier; other merchandisers, however, question whether the reduction on seconds afforded by the three-carrier system does not largely offset the increase in other costs. The whole question of relation of price to cost with respect to the merchandising of ringless is still too new to permit the development of any permanent policy.

Viewed from the long-distance aspect there is strong probability that eventually the industry will absorb the added cost, whatever that may be, and that consumers will come to accept three-carrier hosiery as standard, irrespective of the price factor.

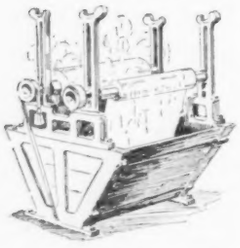
To the full-fashioned industry as a whole, the new three-carrier development is welcome for two reasons: First and immediately, it supplies much-needed ammunition for the merchandising of hosiery during a difficult period; second, it marks the advent of a vital improvement which promises to prove a permanent sales asset to the industry.

New rack designed by Brown Durrell & Co. to display the sheer regular fabric of three-carrier hosiery

Finishing Rayon Taffeta

CARE IN PROCESSING REPAID BY RICH APPEARANCE

By C. S. Jennings



ALL-RAYON taffeta has probably been the source of more trouble in finishing than any other type of rayon fabric. the cotton finisher, in particular, has run into all kinds of difficulty in processing this material. This is due in part to the fact that, unlike the silk finisher, he has had no previous experience with silk taffetas. In addition, the cotton finisher is called upon to handle rayon taffetas made in mills which are employing sizing and weaving methods similar to those used for cotton goods. It is with those taffetas which are manufactured on the cotton system that most of the trouble occurs. Properly finished, however, a rayon taffeta presents a rich hand and appearance which compensate for the care taken in processing.

The finisher should insist that the gray mill deliver rayon taffetas on small rolls, and not folded and baled. Otherwise he will encounter marks of the hooker blades and bale creases which will not come out during the processing of the fabric, but will still be visible in the finished fabric. This is true of both the warp and the filling, but more noticeably in the case of the warp.

When the material is received at the finishing plant, is should be run off the rolls, inspected for faults, and the yardage received checked against the invoiced yardage. Careful inspection is necessary, as slight faults in the gray, which would be observed only by an experienced inspector, might prove to be glaring defects in the finished fabrics. After the goods have been inspected and measured, the lot and piece number are marked on each cut, and the pieces are sewn together in units of 1000 yd. A 10-yd. end cloth is attached to each end of the unit, which is then wound into perfectly even rolls.

Two general rules in handling rayon are that the fabric must be flat and free from crimps whenever it is passed through a nip, and that the top roll should be of light construction and have as little set as possible. Observance of these rules is particularly necessary when all-rayon taffetas are being processed.

Desizing and scouring of rayon taffetas usually is carried out in the open width on a jig, although some plants have been successful in developing methods for handling the goods continuously in the open width. With the ordinary jig, it is almost impossible to run the full roll of taffeta back and forth from beam to beam without causing considerable creasing. This creasing should be avoided, since it is the cause of some of the cut marks which appear in the finished material. Better results can be obtained by using the newer types of jigs which are equipped with anti-friction bearings, smooth-acting clutches, expanders over which the cloth runs as it is beamed up, and similar refinements. One of these improved jigs which lessen the danger of creasing has a relatively small dye box and a single submerged roller in the vat. Automatic control of the temperature of the dye bath is another decided advantage.

Previous to scouring, all-rayon taffetas should be thoroughly desized with the aid of one of the diastatic compounds. The goods are then given a good, hot scour in a solution made from a high grade of low-titre soap which is free from excess alkali. Bleaching is necessary only for white-ground prints, light plain shades and whites. Most finishers prefer the peroxide method for bleaching this class of goods. After scouring or bleaching, the fabric is dyed on the jig, the selection of colors depending largely on the shade, fastness, and dischargeability.

Dyeing is followed by a thorough washing, after which the fabric is shelled up ready for the next operation. It is preferable that the excess moisture be removed by means of a horizontal-roll extractor and the goods then dried on silk drying cans. If, however, this type of equipment is not available, the fabric can be squeezed through a quetsch and run directly onto silk drying cans. Plain shades and whites can now be finished on a range consisting of a three-bowl quetsch, a silk tenter frame and a Palmer calender. Sometimes an additional run through a silk calender is necessary to obtain a particularly soft finish.

Goods which are to be printed should be taken from the drying cans, tentered on a silk tentering frame to a uniform width, and sent to the printing machines. The methods followed in printing and the classes of dyestuffs used are practically the same as those employed for cotton piece goods. Vat, Indigosol, Rapidigen, and commercial colors, for example, are all widely used. An important precaution in printing is to make certain that the back tender feeds the cloth into the machine absolutely flat and free of creases. Also, the lapping and the blanket should be in good condition, and new back grays or grays that have not been used many times or contain many seams should be insisted upon. Steaming or ageing require further precautions. Better results can be obtained by running a back gray through the ager with the taffeta. Developing, soaping, and washing should be carried out on an open-width continuous soaper. The goods are now dried on cans and then are finished in the same manner as has been outlined for whites and plain-dyed shades.

Finally should be mentioned one factor which is of importance throughout the various processes; that factor is tension. In processing rayon taffetas, one must at all times keep in mind the relatively low tensile strength of the fabrics when they are wet, and must avoid excessive tension on the goods while they are on the jigs, dry cans, finishing range, and—particularly—while they are passing through the continuous open soaper after printing.

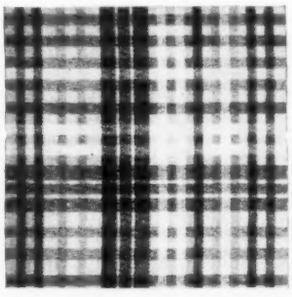
Taffeta to Treebark

RANGE OF POPULAR FABRICS INCLUDES ALPACA AND PLISSÉ

By Carl C. Mattmann, Jr.
A. M. Tenney Associates and Fitchburg Yarn Co.

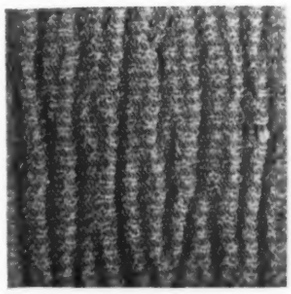
CONSIDERABLE contrast is shown in the various silk and rayon fabrics holding the interest of the trade today as prominent for coming seasons. One fabric enjoying a particularly important position is taffeta, and of course any other fabric is a contrast to this most basic of cloth constructions. One step—or perhaps only a fraction of a step—above taffeta is alpaca, now being shown even in bathing suits. At the upper extremity, from point of view of distinctiveness in appearance, is treebark; and a short step below treebark is plissé. Even these fabrics at the upper extremity, however, are more complicated in appearance than in construction.

In fact, if a novice who knew nothing about cloth construction should suddenly decide to evolve a fabric, the chances are that, assuming he succeeded in getting anywhere at all, he would evolve a taffeta weave. Then, if he should attempt an ordinary crepe and make the not unlikely mistake of first using one-way twist throughout, he would develop at least a plissé. Finally, if he were throwing the yarns himself and failed to produce even twist and uniform denier—as in all probability he would so fail—he might even produce a form of treebark. Therefore, it appears that the prominent fabrics of the moment are of a relatively simple variety—at least in contrast to such recently popular constructions as sand, moss, bedford cord, and matelassé.



1. All-silk taffeta, yarn-dyed plaid. Warp: 40" in reed, 180 ends per inch of 2-thread 13/15 organzine weighted to 16/18, 60/3/1 reed. Filling: 96 picks of 3-thread 13/15 tram weighted to 20/22.

2. Moiré taffeta. Warp: 41" in reed, 200 ends per inch of 75/26-den. bright acetate, 50/4/1 reed. Filling: 64 picks of 120/40-den. bright acetate.

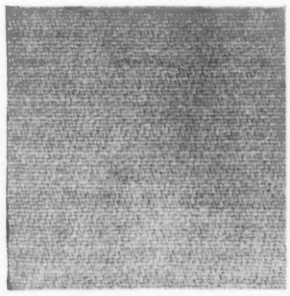


6. Treebark, satin back. Warp: 48" in reed, 280 ends per inch of 75/26-den. dull acetate, 35/8/1 reed. Filling: 48 picks per inch, 2 picks of 75-den. rayon crepe left twist alternating with 2 picks of a 6,800-yd. rayon crepe bouclé right twist. Weave: 8-shaft satin.

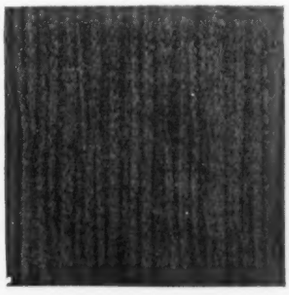
Taffetas are being developed in a variety, including cross dyes, plaids, and moiré finishes; and they are destined for box linings, draperies, women's suits, and of course day and evening dresses. Synthetic constructions are prominent. They will not crack when left hanging in the closet, can be given any degree of luster, and possess excellent draping qualities. Today's fabrics lack the objectionable glassiness and ultra-stiffness of the early rayon taffetas. Popular synthetic constructions include 200/64, reeded 50/4/1, with 75-denier acetate warp and 120-denier acetate filling; 180/56, with 150-denier in warp and filling; and 180/64 with 75-denier warp and 150-denier filling. The all-silk taffeta constructions now on the market are of the superior type and beautiful—although expensive.

Care must be taken to secure good yarns for taffetas, because the construction is of little assistance in concealing yarn defects.

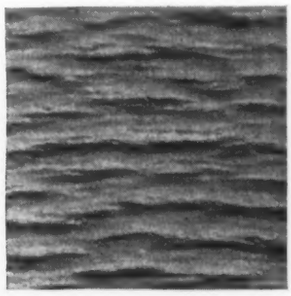
Plissés are called "treebark" by some manufacturers, but in reality they are only crinkle effects obtained by using one-way twist throughout the filling. In the dyeing and finishing, breaks occur warpwise, producing a vertical crinkle. The warp must be set wide in the loom to allow for the shrinkage caused by the warp ridges and must be set dense enough to hold the filling from



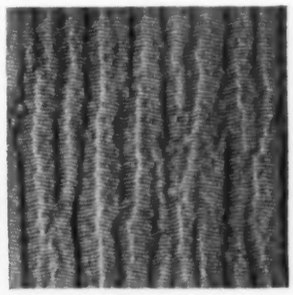
3. Alpaca. Warp: 47" in reed, 160 ends per inch of 100/3¼-den. acetate, 22-turn voile twist, 40/4/1 reed. Filling: 40 picks of 2/35s wool crepe, 2 r. and 2 l.



4. Plissé satin.. Warp: 48" in reed, 320 ends per inch of 65/20-den. bright acetate, 40/8/1 reed. Filling: 92 picks of 100/40-den. rayon crepe, one-way twist only. Weave: 8-shaft satin.



5. Embossed treebark. Warp: 48" in reed, 320 ends per inch of 65/20-den, bright acetate, 40/8/1 reed. Filling: 92 picks of 100/40-den. rayon crepe, 2 r. and 2 l. Weave: 8-shaft satin. Finish: embossed.



7. Treebark version. Warp: 50" in reed, 135 ends per inch of 100/3¼-den. dull acetate, 45/3/1 reed. Filling: 42 picks of 29/2 spun-rayon crepe, 2 picks of soft crepe twist right alternating with 2 picks of regular crepe twist left. Weave: plain.

kinking up between the ends in the finishing. A good silk construction is 60/3/2 reed, set 50 in. in reed, and woven plain with 20/22 Japan-crepe warp and 104 picks of 4-thread, 13/15 Japan-crepe filling. An excellent synthetic construction is 320 ends of 65-denier acetate, set 48 in. in reed, with 92 picks of 100-denier rayon-crepe filling, woven as 8-shaft satin. Using the same warp with 112 picks of 4-thread 13/15 Japan-crepe, one-way twist, in the filling produces a very high type of plissé.

True treebark, when not made by means of an embossed finish on a satin construction, is usually produced by picking two threads of coarse or bouclé crepe and two threads of very light crepe of opposite twist. The struggle as the heavy yarn seeks to overcome the tendency of the light yarn to crepe in a natural manner serves to break the fabric into a very pronounced crinkle. Another fairly common method is to employ a filling of uniform size but with two picks of full-twist crepe and two picks of opposite soft-twist crepe, the latter at least ten turns under the former. Fabrics resembling the bark of a tree can of course be produced by means of a matelassé weave and in various other ways, one of which is through the use of Lastex. The Lastex treebark, according to Marie Stark, writing in the November, 1933, TEXTILE WORLD, was "the fabric sensation of the winter openings" held last fall in Paris.

Box-Motion Dentistry

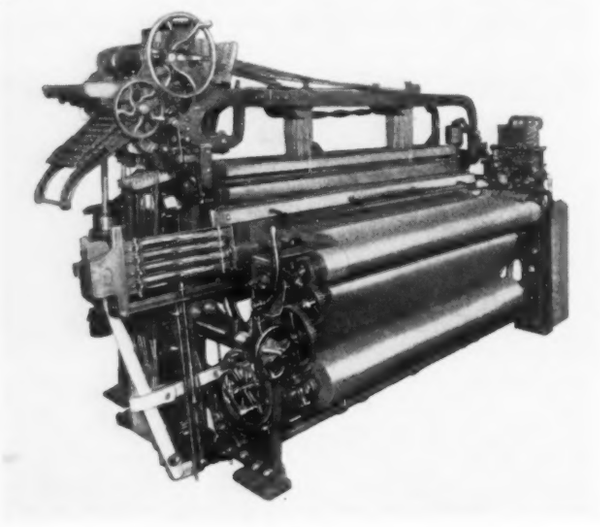
AIDS TIMING OF WOOL LOOMS

By Benjamin F. Hayes

IT is desirable, where possible, to have the two cylinders which drive the box motion of a wool loom operating in unison. Where this is not possible, the lower cylinder must operate ahead of the top cylinder, and never the other way around. The reason for this is that the boxes are raised positively but are lowered only through gravity with the aid of a spring, and the positive action is of course the more rapid.

If the cylinders are not giving the desired results, their time can be changed only by means of a little dental work conducted on the bevel gears which drive them. There are two of these bevel gears, both mounted on the upright shaft and meshing with corresponding gears on the ends of the cylinders. The gear on the top cylinder and its mate are usually the ones to wear out. In fact, through years of loom-fixing, I have seen only one set of the lower gears worn out.

Suppose that an inspection of the loom shows the top cylinder to be operating ahead of the bottom cylinder, as occasionally happens. The only way we can speed up the bottom cylinder the required amount is to cut out one-half of a setting tooth. We then have two setting teeth in the gear where only one is required when the key in the gear has been cut in the right place. It is now possible to set the bottom cylinder ahead one tooth.



A lead of the bottom cylinder over the top cylinder of about one-half tooth will cause the boxes to move downward on the same time that they move upward, and this is the desired condition.

In timing the boxes with the movement of the lay, the shuttle should be taken out of the box and the lay brought forward until the protector strikes. At this time the boxes must have moved about $\frac{1}{4}$ in. The fixer should first try the time with the boxes dropping and then with the boxes rising. The time should be the same, as nearly as possible, in both instances, assuming that a single rise or single fall is being obtained. Timing the boxes should never be attempted on either double lifts or double drops. These double movements sometimes give the fixer considerable trouble, particularly when he is endeavoring to make run-down looms operate as fast as new looms. It is much easier to obtain these double movements of the boxes when the loom can be run on an even-pick movement.

Some fixers, and some overseers as well, seem to think that we cannot operate more than four shuttles on an even-pick movement; but I have so operated five, six, and even seven shuttles. The boxes have more time to move when the even-pick movement is used than when the pick-and-pick movement is used.

Occasionally looms will operate for a year or longer without more than two boxes on each side being employed. Then along comes a warp which calls for the use of four boxes on each side. In such cases, we often find that the boxes which have not been used are too high to come even with the race plate on the lay. They will also be too high to come even with the picker race. When we drop these particular boxes down, the ones which were all right before will now be too low.

Sometimes we can bring all four boxes even with each other merely by turning the box-lifting chain over, providing some other loom fixer has not already got ahead of us. If that is the case, we can yet accomplish the desired result by placing wire links on the box lifting chain in such a manner that they will lie between the chain and the carrier pulley and so bring the low boxes —those which have been in operation—up to the required height. In effect, the wire links fill the place of the metal which has been worn off. There are other methods for accomplishing the results, but I consider this the quickest and most satisfactory.

FROM APPRENTICE TO PRESIDENT—

John H. Brine

"Let each of us enforce the code in our own mill —and present threats will vanish."

APPRENTICE knitter at the age of 20, followed by a quarter-century's experience in all divisions of full-fashioned and seamless hosiery manufacture, culminating in his reaching the presidency of an outstanding mid-western company—such, in read-as you-run fashion, is the history of John H. Brine, recently elected president of the National Association of Hosiery Manufacturers.

The Association's change of chief executives which permitted William Meyer to take a well-earned rest after three years' service during the most crucial period in the history of the industry, is marked by numerous significant aspects. The first is geographical; in electing Mr. Brine, the association reached a long hand across a score of States to Des Moines, Iowa, where the new president has headquarters as president of Rollins Hosiery Mills, Inc. This marks a new departure, since for many years the office has been held by eastern executives. Other interesting aspects are Mr. Brine's lifetime devotion to hosiery manufacture which has given him unusual insight into both the specific and the broader problems of the industry; and his own clear-cut policies for the association during the recovery period.

All of which prompted the writer to buttonhole Mr. Brine at the association's New York offices recently for an informal talk. Questions were propounded regarding the industry's prospects both with regard to the NRA and otherwise. Mr. Brine summed it all up in two phases: First, price stability; and, second, production control. And he added that the two were so closely allied as really to constitute a single issue.

"Cooperation," he said, "is the keynote"; and he amplified that with a quick, terse review of the current situation. The hosiery code already has helped the industry, though the benefits have not always come up to expectations. Manufacturers have criticized the Code Authority for this—justly, no doubt, in some instances—but the basic responsibility lies with the industry itself.

"There's a lot of talk about the price situation and over-production," Mr. Brine remarked, "but the fact is, these difficulties would adjust themselves almost automatically if there were no violations of the selling-below-cost clause of the code.

"However," he continued, "it all gets back to the question of individual cooperation. I cannot repeat that too often. Let each of us enforce the code in our own mill—as we are gradually coming to do—and the present threat of bankruptcy overhanging the industry will quickly vanish."

In personality the new president of the hosiery association is, first of all, a man of the mill. He talks with the reticence of one whose life has been action rather than oratory—as indeed is confirmed by a study of his background. Mr. Brine was born and raised in Ohio, moving in 1896 to Wisconsin where he was educated. In 1900 he entered the employ of the Chicago-Rockford Hosiery Co., which marked the start of nearly thirty years service continuing with the Chicago-Rockford company's successor, the Allen-A Co., until 1929. At that time Mr. Brine held the dual post of vice-president and general superintendent of the Allen-A Co. He then resigned to join the Rollins company in Des Moines. He has worked in every department of the mill.

To complete the personal picture: Mr. Brine is married, with three children. One son, Gordon F. Brine, is director of sales at the Rollins mill. The hosiery association's new president is a devotee of many sports including baseball, football and golf. Indeed, his more remote background includes a period as semi-professional baseball player. He has only one chief dislike; that is, talking about himself. The comment with which he concluded the interview is typical of the man.

"Stress the need of cooperation—that is vital," he said, "but go light on the personal side—don't make it flowery!"

Draft on the Mule

MUST BE BALANCED WITH TWIST

By L. A. Crosland

THIS question of drafts is the most important factor in woolen spinning. All drafting is done between the rollers and the spindles, but two types of draft are employed: (1) the true spindle draft, applied after the rollers stop; and (2) the carriage drag, which is the gain of carriage speed over roller speed while the rollers are delivering. The first should be the method used when spinning fine wools. The second can be used for coarse wools or mixtures of wool and cotton, but is dangerous if applied to fine wools.

Many spinners, however, prefer to use the second method because they believe that it enables them to obtain a greater output of yarn. This is extremely doubtful, and it is certain that many yarns are spoiled because the application of carriage drag at too early a stage in the outward run of the carriage results in twitty (uneven and lumpy) yarn.

Fine wools require a fair amount of twist to be inserted before drafting commences. Where carriage drag is employed for these materials, it is found that it is impossible to insert sufficient twist before the rollers have finished delivering.

Applying draft to an untwisted or insufficiently twisted roping results either in breaking down of the roping or the appearance of small places, or twits; but if a roping is twitty to begin with, correct use of spindle draft will tend to remove the twits and make a sound yarn. This is because the twist which is inserted during delivery runs first of all to the small places and increases their resistance to drafting. Thus, when drafting commences, the larger, and therefore softer, places are affected first and the roping is made into a level yarn.

Blends composed of fine wools can be drafted successfully with a draft of from 1½ to 2. The thicker the roping that can be employed successfully, the better the resultant yarn—and the greater the output will be, because a thicker roping will have to be drafted further. It will be necessary to get the carriage out more quickly in order to complete the drafting before the twist locks the fibers in the roping and thus prevents any further drafting taking place.

With wool of 64s to 70s quality and the roping half the thickness of the spun counts, the rollers would deliver for half the distance of the carriage traverse, and the remaining half would be devoted to drafting. Output both on cards and mule would be greater than if ropings were made finer, and a sound and full-handling yarn would be produced.

In spinning coarse wools or blends of cotton and wool, the fibers very quickly become set; that is, they lock around each other and it becomes impossible to draft them any further. Under these circumstances, drag is permissible and indeed advisable. The object in applying drag is to get the carriage further out before delivery stops, and thus less spindle draft is required.

A cotton and wool blend should be condensed to at least two-thirds of the spun length. Therefore, on a mule with a draw of 84 in. it would, when spinning by the first method, be necessary to stop the delivery when the carriage had traveled 56 in., leaving 28 in. to be drafted; but if the carriage is made to travel 64 in. while the rollers are delivering 56 in., only 20 in. of draft must be applied. As very little twist serves to set materials of this type, this carriage drag can be successfully employed without damaging the yarn.

Whatever method of drafting is used, however, it is most important that the correct amount of twist be inserted during drafting, or the yarn will not be even and strong. In order to vary the amount of twist for different materials, two things can be done: (1) Alter the speed at which the spindles revolve during delivering and drafting; or (2) alter the speed at which the carriage runs during delivering and drafting.

The first alteration is made by changing the rim pulley which drives the spindles at this period. The pulley is a driver. Therefore the larger the pulley, the faster the spindles run, and the more twist is inserted into the roping.

To alter the carriage speed, the pinion gear on the rim shaft must be changed. The bigger the gear, the faster the carriage will run out. In order to obtain maximum production, the carriage must run out as fast as possible for the material being spun; therefore, large pinion gears will be required. For good-quality wool, 60s and upwards, it will be found that the largest pinion gears, along with the largest rim gears, can be used successfully; but when spinning lower qualities of materials, it may be found that high speeds cause excessive breakages of the yarn, and thus cause more waste to be made. Also, as it may be necessary to stop the mule to tie up the broken ends, production will be lower. If this is the case, it will be found advisable to slow down the carriage and spindles to reduce the breakages, and this will probably increase the production and lessen the amount of waste made.

In all cases, use as much draft as the material will stand and use as high speeds as possible, but be certain that the twist and draft are properly balanced to produce a straight, sound yarn.

Bull Market

FOR 1934 GRADUATES OF TEXTILE SCHOOLS

A REJUVENATED industry beckoned to the graduates of the various textile schools this month as scores of future textile executives made their bows at commencement exercises. Reports from the schools were almost monotonous in their repetition of the fact that the graduates had found employment before commencement day. Not in many years has this particular crop been harvested under more favorable conditions. Numerically, the total number seems to be somewhat below that of last year, which was sharply above that of the previous year. However, 1934 was what might be called a normal year, with some schools striking away from the average, with sharply increased senior classes.

Alabama Polytechnic Institute

Three students completed all requirements for B.S. degree in Textile Engineering at Alabama this year, compared with nine last year, and seven in 1932. The reduction was due partly to conditions which caused quite a number to drop out, and partly to the fact that some just failed to make the grade, as the school is consistently improving its courses. Dr. O. C. Carmichael, president of Woman's College, Montevallo, Ala., delivered the principal address at commencement exercises May 27.

Bradford-Durfee Textile School

Thirty-nine day student graduates received diplomas at Bradford-Durfee this year, while 35 night students were awarded diplomas. These are in addition to extremely large groups in the certificate courses, particularly in the evening classes. Dr. David D. Vaughan, of Boston University, delivered the principal address at the graduation exercises June 1.

Clemson College

Clemson had a much larger textile enrollment than ever before, having 200 men in the Textile School. Twenty-four students graduated this year, as against 29 last year. Practically all the graduates were placed before commencement. Joseph Thomas Rouse, of Luray, S. C., was awarded the N.A.C.M. medal. Octavus Roy Cohen, nationally known author and a former student at Clemson, delivered the commencement address on June 5.

Georgia School of Technology

The A. French Textile School at Georgia Tech, graduated 14 students this year, the same number as last year. The principal address at the graduation exercises was by Rear Admiral Thomas C. Hart, superintendent, U. S. Naval Academy, Annapolis, Md. The N.A.C.M. medal was awarded to Wallace Tatum Jackson, of Atlanta, while the medal given by the Cotton Manufacturers Association of Georgia was won by Warren Cavender Magill, of Villanow, Ga.

Lowell Textile Institute

Nearly twice as many students finished at Lowell this year as last. Seventeen received the degree of Bachelor of Textile Chemistry, 12 the degree of Bachelor of Textile Engineering, two received diplomas in Wool Manufacture, and one in Cotton Manufacture. This total of 32 compares with a total of 19 last year. Edwin O. Childs, ex-Mayor of Newton, Mass., was the principal speaker at the commencement June 5. The N.A.C.M. medal this year went to David J. Fox of Lowell.

Philadelphia Textile School

Students completing the full day school courses at Philadelphia numbered 30, compared with 31 in 1933, and 27 in 1932. In addition, a large number completed courses and subjects in the evening school. Dr. Cheesman A. Herrick, president of Girard College, Philadelphia, delivered the principal address at the graduation exercises June 7. His subject was "Art in Industry" The N.A.C.M. medal this year was awarded to Jack Ho Lem.

New Bedford Textile School

Total number of day and evening graduates at New Bedford this year was 177, against 202 in 1932, and 181 in 1933. This year's number included 22 day graduates receiving diplomas, 20 day graduates receiving certificates, three evening graduates receiving evening diplomas and 132 evening graduates receiving evening certificates. The principal address at the graduation exercises June 8 was by Congressman Charles B. Gifford.

North Carolina State College

Every one of the 35 men in the graduating class of the Textile School of N. C. State College has been offered employment in the industry. Enrollment this year was about 48% in excess of last year, and considerably higher than any previous year. Dr. Frank P. Graham, president of the University of N. C., delivered the commencement address June 12. H. M. Foy, Jr., of Mount Airy, N. C., was awarded the N.A.C.M. medal.

Texas Technological College

Of the 191 students who completed the requirements of the division of engineering at this college, this year, four have majored in textile engineering, as against three last year and five in 1932. At the commencement exercises June 3, the address was given by Dr. Henry G. Bennett, president of Oklahoma A. & M. College.

Warp Sizing

OF COTTON AND RAYON CONSIDERED AT CONFERENCE

PRESENT-DAY methods of sizing cotton and rayon warps and the possibility of developing more scientific procedures were considered at a conference held in New York on May 11 by the United States Institute for Textile Research. Discussion of warp sizing from the viewpoint of economy of the operation itself and its influence on weaving and finishing disclosed the empirical nature of existing sizing practice and the need for research on sizing methods and materials. It was emphasized also that any research project should take cognizance of the fact that requirements for rayon sizing differ in many respects from those for cotton sizing. The conference, which was attended by about 75 textile manufacturers and members of allied trades, was presided over by Dr. Harold DeWitt Smith, vice-chairman of the Institute's research committee.

Preceding the general discussion, B. L. Hathorne, textile consultant; Prof. E. R. Schwarz, of Massachusetts Institute of Technology; and Albert Palmer, research director, Crompton & Knowles Loom Works, outlined some of the more important phases of the subject. Mr. Hathorne cited lack of uniformity in sizing as the most serious phase of the problem. Professor Schwarz, after calling attention to the necessity for considering the properties of the yarn to which the sizing is to be applied, as well as the properties of the sizing materials as they affect the yarn (rather than the fibers) pointed out that a properly sized yarn should combine the properties of flexibility, elasticity, and strength. In a report of the results of an investigation to determine where warp breaks occur on the loom and the reasons for these breaks, Mr. Palmer stated that approximately 65% of the breaks occur in the harness and 15% in the path of the reed and that the vast majority of the breaks occur in the first 2 or 3 in. from the selvage. Breaks are caused by abrasion, due to the action of the shuttle and the reed. Knots and slubs account for about one-third of the breaks, the remainder probably being due to a combination of causes.

General discussion of the problem centered largely on the need for information which will enable the sizing operation to be carried out in such a way as to improve the weaving qualities of the yarn and at the same time to lessen the difficulties encountered in desizing the woven fabric in the finishing plant. Commenting on this point, Dr. I. J. Saxl, of Waypoyset Mfg. Co., asserted that sizing is to a large extent a physical problem and should be attacked from that angle. Since yarn in the loom should have increased strength and a type of lubrication which might be called "solid lubrication," those compounds should be studied which increase strength and also those which eliminate both internal and external friction. Starches and other materials of a high viscosity increase the strength; various softeners of low viscosity and surface tension give the needed lubrication. A combination of compounds having these two characteristics plus good adherence to the yarn should result in a satisfactory size. In this connection, several speakers voiced the opinion that interfacial tension between the yarn and the sizing solution plays an important part as regards the absorption of the size by the yarn and yield value of the solution. Variation in the viscosity of the starch solution was cited by W. A. Nivling, sizing consultant, as one of the chief causes for variation in sizing. According to Miss Dorothy Potter, of National Oil Products Co., viscosity is of less importance in the case of gelatin sizes used on rayon, where a thin, tough, and elastic film is desired.

Representatives of finishing plants deplored the lack of uniformity in sizing methods practiced by various mills, the uses of sizing materials which are difficult to remove from the woven fabric, and the unwillingness on the part of the mill to give the finisher information as to the materials employed in sizing. These conditions add greatly to the problems encountered in finishing and increase costs, as it is necessary to maintain a large margin of safety in the desizing operation. Use of insoluble waxes, mineral oil, linseed oil, together with certain mineral salts employed as mildew preventives which inhibit the action of the diastases, were criticized by several finishers. Howard Clayton, of Cluett, Peabody & Co., pointed out in this connection that in the case of cotton garments manufactured from fabric in the loom state, use of insoluble waxes and gums in sizing prevents preshrinking of the goods and results in garments which shrink in laundering.

It was the consensus of opinion that various formulas must be employed for different numbers of cotton yarns and for the several types and sizes of synthetic yarns. One mill man, for example, stated that his plant had standardized on eight formulas—three for cotton and eight for synthetic yarns. J. H. White, of Pequot Mills, said that during the last two years he has experimented with 200 sizing formulas for cotton and has found that a surface coating of the yarn is not sufficient, good results being obtained only when the size penetrates to the center.

In reply to an inquiry by Leonard Kleeb, Jr., of Pepperell Mfg. Co., as to whether there is any method for determining the degree of penetration of gelatin sizes on rayon (which cannot be determined by the iodine test for starch), Mr. Hathorne suggested the use of a solution of wool dyestuff in absolute alcohol. When a sample of sized rayon is placed in this solution, the gelatin is dyed, but regenerated cellulose or cellulose acetate yarns are not colored; on the contrary with an alcoholic solution of an oil-soluble dyestuff, which will not dye the gelatin, it is possible to determine how far the softener has penetrated in to the yarn. Professor Schwarz added that penetration of gelatin sizes can be determined also by observing cross-sections of the yarn under polarized light.

That Presser Diameter...

ITS CALCULATION BY KNIT-GOODS DESIGNER

By J. Frederick Cahill
Knitting Consultant

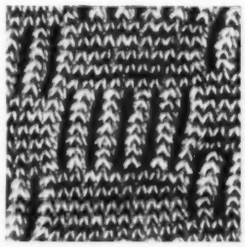
THIS article is in response to several requests for information on determining the exact diameter of pressers with any number of cuts and for any desired gage. An effort will be made to make it simple and easily understandable.

Usually the degree of coarseness or fineness of loop-wheel spring-needle knitting machines is defined in terms of gage; but in the determination of presser diameters from the required circumferences, the gage must first be reduced to "needles per inch." A cut presser required for any particular pattern or design requires a circumference of sufficient length to enable it to engage a definite number of needles; and when the gage of the needles is reduced to "needles per inch," such circumference may be expressed in inches and thousandths of an inch.

In loop-wheel machines commonly in use which employ leaded needles, the number of needles per inch is two-thirds the gage; while in those that employ a fixed number of needles in the cylinders, and almost invariably rotate in a direction toward the operator's left, the number is one-half the gage. Thus, in the former type 16 gage would mean $\frac{2}{3} \times 16$ or $10\frac{2}{3}$ needles per inch. This expressed in decimals is 10.666 needles per inch. In the latter type of machine, having "trick cylinders" or a fixed number of needles in the cylinder, 16 gage would mean $16 \div 2$, or 8 needles per inch.

For rapid mental calculation of the number of needles per inch for leaded needles this writer has adopted the formula: "Double the gage and divide by three." This is easy to remember and renders unnecessary a multiplication by fractions.

Thus $16 \times 2 = 32$ and $32 \div 3 = 10\frac{2}{3}$ needles per inch.



The actual range of diameters of a presser is limited, even disregarding the number of needles engaged by its circumference. If the diameter is too small, the presser does not operate on a space of needles sufficiently wide to enable the landing burr to clear the loop safely and surely above the point of the beard while the beard point is pressed into the eye of the needle. On the other hand, if it is too large, the presser occupies so much space that it decreases the number of feeds to the detriment of production.

In a previous article* it was mentioned that the range of diameters for cut pressers, expressed in inches and fractions of an inch, should be from $1\frac{3}{4}$ to $3\frac{1}{2}$ in. and that a rapid method of finding whether or not the diameter of a required presser will fall within this range in inches is to divide the number of needles which its circumference is to engage by the gage of needles on which it is to operate. If the result of such division is not less than 4 or more than 8, the diameter will fall within the range of convenient sizes. In other words, a safe number of needles to be engaged by the circumference of a cut presser may range in the case of leaded needles from 4 to 8 times the gage on which it is to be operated. In the case of trick cylinders, rotating to the left, the range may be from 3 to 6 times the gage.

It can be shown that this expression is true for any gage, whether it be for 10 or 36 gage with leaded needles or for 12 to 48 gage with trick cylinders. Also it can be shown that for any gage, pressers having a needle circumference of a given number of times the gage will have diameters very nearly equal within a very small fraction of an inch. For example, a presser with a needle circumference of 5 times 10 gage (or 50 needles) will be but a small fraction of an inch larger than a presser with a needle circumference of 5 times 36 gage (or 180 needles).

The slight difference in diameter will be due entirely to the necessary allowance for the depth of cut required for the prints. As the prints are cut entirely around the circle, their depth must be doubled and added to the calculated diameter. The depth of cut required for the prints of a 10-gage presser is much greater than that required for a 36-gage presser.

The depth of cut allowable for prints of the various gages ranges as follows for leaded needles: 10 to 14 gage inclusive, .032 or $\frac{1}{32}$ in.; 16 to 20 gage inclusive, .024 in.; 22 to 26 gage, .016 in.; and 28 to 36 gage, .012 in. These figures must be doubled and added to the calculated diameter of the presser to obtain the diameter to which the presser must be turned in the lathe. Thus the addition to be made to the calculated diameters of pressers for 10 to 14 gage would be double $\frac{1}{32}$ in., or $\frac{1}{16}$ in.; while for 22 to 26 gage, it would be double .016 in. or .032 in. (approximately $\frac{1}{32}$ in.).

For the explanation of methods and formulas for determining the exact diameters of pressers for various needle circumferences, use will be made of arbitrary numbers of needles having no definite relation to any specific pattern or design. In foregoing articles the methods for determining the needle circumferences required for various designs and patterns have been carefully explained; and we shall now assume that a presser with a circumference to engage 120 needles of 22 gage has been arrived at.

As mentioned before, the circumference may be expressed in numbers of needles and gage, but the diameter must be expressed in inches and fractions of an inch, preferably thousandths. In the arbitrary example selected the needles per inch are two-thirds the gage, $14\frac{2}{3}$.

The presser circumference is $120 \div 14.66$, or 8.186 in. This, divided by 3.1416 or multiplied by .3183 (which is the same thing and somewhat simpler), gives a diameter

*Other articles by Mr. Cahill on circular-knitting design appeared May 28 and July, 1932, and February, April, and December, 1933.

of 2.606 in., to which must be added double the depth of cut for the print allowance, or .032 in. The total diameter is therefore 2.606 + .032, or 2.638 in., slightly more than $2\frac{5}{8}$ in.

Now 120 needles for 22 gage is 10 needles more than 5 times the gage, or 1 needle less than $5\frac{1}{2}$ times the gage.

It will be shown by the same formula that a 10-gage presser of $5\frac{1}{2}$ times the gage will have very nearly the same diameter. The needles in the circumference will be 10 x $5\frac{1}{2}$, or 55. The needles per inch will be $\frac{2}{3}$ x 10, or 6.66. Dividing 55 by 6.66 gives a circumference of 8.258 in. This, multiplied by .3183, affords a calculated diameter of 2.629 in. Adding double the depth of print for 10 gage, .0625 in., makes the total diameter 2.6915 in., which is only .053 in. (or less than $\frac{1}{16}$ in.) larger than the 22 gage presser equivalent to $5\frac{1}{2}$ times its gage.

The method just explained applied to pressers of any number of needles in circumference will result in accurate diameters and can be expressed as the following formula or rule: "Divide needles in presser circumference by needles per inch in gage. Multiply result by .3183 and add double the depth of print for that gage."

Clipped-Spot Ginghams

FILLING-DOTTED MATERIAL PROVING POPULAR

By Harry L. Robertshaw

GINGHAM checks with white clipped-filling spots have gained in popularity this spring. As the season advances, this type of fabric promises to be one of the largest yardage items in the popular-priced cotton-dress field. The light weight of the fabric lends itself very well for late spring and summer in dresses, blouses, and children's wear.

The hand and drape are very good, and the fabric itself always looks fresh after being laundered.

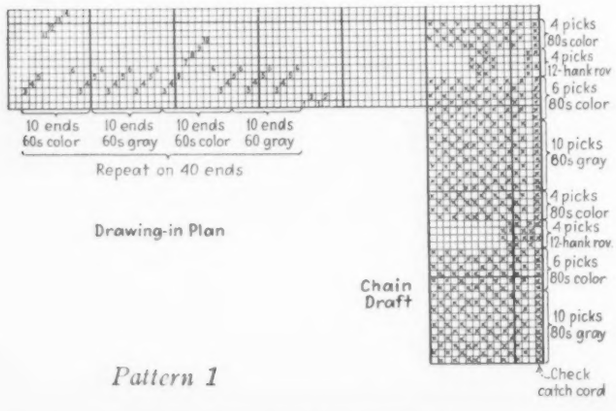
The weaving requires a 4 x 1 dobby box loom. Great care should be taken to have the 12s roving yarn as even as possible, so that when the filling is clipped the spots will stand out very bold and clear, as the eye value of the cloth depends largely upon the spots being round and even.

In the clipping, the shear should be set so that the filling is left about $\frac{3}{32}$ in. longer than the spot on each side, as the filling, if cut too short, will work through the face of the cloth in finishing, and if it is left a little long, the bleach will curl the ends over and make the spots more solid.

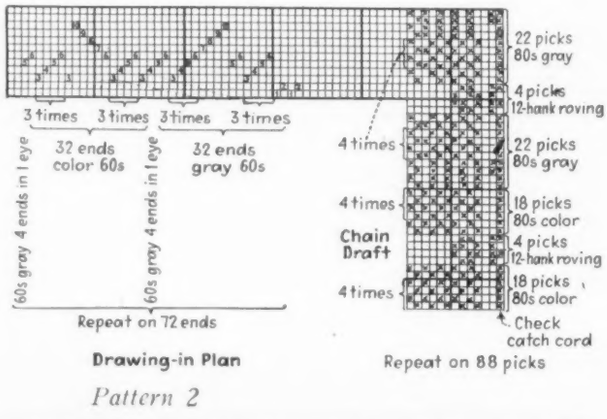
The construction of the better types of clipped gingham checks is as follows: 36 in., 74 x 70 ground, made with 60s combed warp and 80s combed filling, color and gray, with 12-hank roving for the clipped spots.

Pattern 1: 36 in., 74 x 70 ground, 14 picks of 12-hank roving per inch, 60s combed warp (color and gray), 80s combed filling (color and gray), 4 roving picks per spot.

Pattern 2: 36 in., 79 x 74 average, 74 x 70, with 7.75 picks of 12-hank roving per inch, 60s combed warp (color and gray), 80s combed filling (color and gray), 4 roving picks per spot.



Pattern 1



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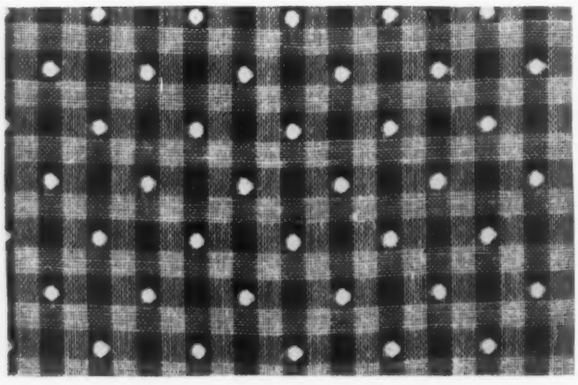
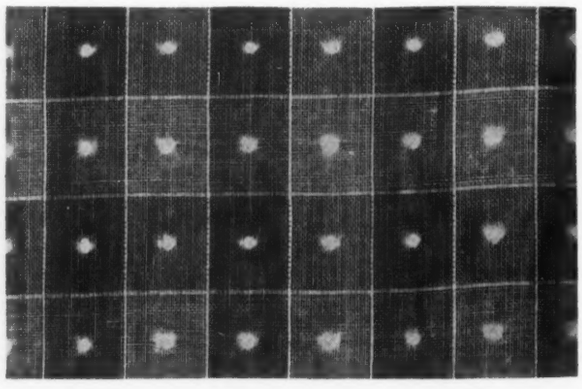




PROPERTIES AND USES OF

50 Organic Solvents

NEW AND OLD FOR TEXTILE WORK

Solvent	Boiling Point	Solubility in Water	Uses
Acetic acid	118° C	S	Solvent for basic dyestuffs.
Acetic acid, glacial	118–119°C	S	Manufacture of cellulose acetate.
*Acetic anhydride	140° C	D	Manufacture of cellulose acetate.
*Acetone	56° C	S	Solvent for cellulose acetate and nitrocellulose; penetrating agent in aniline black dyeing; spotting agent manufacture of rayon.
*Amyl acetate	148° C	VSS	Solvent in lacquer finishing; spotting agent.
*Amyl alcohol	128° C	S	Spotting agent.
Aniline (*poisonous*)	184° C	SS	Assistant in scouring cotton.
*Benzene (Benzol)	80° C	I	Constituent of silk degumming agents, scouring soaps, and spotting agents; solvent for fats, oils, waxes, etc.
Butyl acetate	125° C	SS	Preparation of pyroxylin coatings.
*Butyl alcohol (Butanol)	100–118° C	S	Constituent (with diethylene glycol, etc.) of yarn lubricants; preparation of pyroxylin coatings; spotting agent; rayon manufacture.
Butyl cellosolve	171° C	SS	Coupler for making emulsions; wetting agent in carbonizing, acid dyeing, dyeing cellulose acetate, and (with phenolic compounds) mercerizing; spotting agent.
*Carbon bisulphide (*poisonous*)	46° C	SS	Rayon manufacture; preparation of special finishes, solvent for rubber.
Carbon tetrachloride (*poisonous*)	77° C	VSS	Degreasing wool; spotting agent; filling fire extinguishers.
Cellosolve acetate	153° C	S	Solvent for nitrocellulose and resins.
Chloroform	61° C	SS	Constituent of spotting agents.
Cresylic acid (Cresol)	190–210° C	SS	Constituent of scouring agents and (combined with triethanolamine) wetting agent for mercerizing and finishing.
Cyclohexanol (Hexalin)	161° C	SS	Constituent of soaps and kier assistants; spotting agent.
Decahydronapthalene (Decalin)	189–191° C	I	Constituent of scouring compounds; spotting agent.
*Denatured alcohol (*poisonous*)	180–181° C	S	Solvent for basic and naphthol dyestuffs; constituent of silk degumming, wetting, and spotting agents; attaching celluloid tips to braids; manufacture of nitrocellulose.
Dichlorethylether	178° C	I	Depainting and detarring wool; penetrant in kier boiling; constituent of scouring soaps and wetting agents.
Diethylene glycol	245° C	S	Dyeing assistant; dye solvent; preparing printing pastes; lubrication of combed wools, knitting yarns etc.; constituent of soaps, soluble oils, soaking compounds, softeners, conditioning agents, yarn tinting solutions, and sizing and finishing compounds.
*Diethylene oxide	101° C	S	Solvent for dyestuffs, cellulose acetate, resins, oils, and waxes.
Diethylene glycol ethyl ether (Carbitol)	198° C	S	Solvent for dyestuffs, nitrocellulose, and resins; preparing printing pastes, coupler for emulsions
*Ether	35° C	I	Manufacture of nitrocellulose; spotting agent.
*Ethyl alcohol	78° C	S	Laboratory reagent.
Ethyl benzene	136° C	SS	Spotting agent.
*Ethylene dichloride	84° C	S	Removal of oils from waste; degreasing operations; depainting and detarring wool; constituents of wetting agents, scouring soaps, and kier boiling compounds; spotting agent.
Ethylene glycol	197° C	S	Solvent for dyestuffs; conditioning liquid; swelling agent for rayon and wool; antifreeze for sprinkler systems, mill trucks, etc.
Ethylene glycol ethyl ether (Cellosolve)	135°C	S	Dissolving dyestuffs (e.g., naphthol and Indigosol); depainting wool; preparing printing pastes; dyeing assistant; preparing pyroxylin and lacquer coatings; dispersing and penetrating agent in scouring constituent of wetting agents.
Ethylene glycol monobutyl ether. (Butyl Cellosolve)	171° C	S	Solvent for acetate dyestuffs; coupler for making emulsions; constituent of stock lubricants, kier-boiling compounds, silk soaking oils, and scouring agents; spotting agent for cellulose acetate, etc.
Ethylene glycol monomethyl ether	125° C	S	Preparation of nitrocellulose lacquers; solvent for cellulose acetate; adhesive for moisture-proof cellophane
Furfural	162° C	SS	Preparation of printing pastes.
Furfuryl alcohol	75° C	SI	Preparation of printing pastes.
*Gasoline	70–90° C	I	Constituent of spotting agents; cleaning machine parts; etc.
Glycerin (Glycerol)	290° C	S	Constituent of sizing and finishing compounds, printing pastes, and conditioning agents.
*Kerosene	150–250° C	I	Removing tar and paint; cleaning machine parts, such as separator pins on worsted cap spinning frames
*Methyl alcohol (*poisonous*)	67° C	S	Solvent for dyestuffs, spotting agent; antifreeze.
*Naphtha, solvent	160° C	I	Wool scouring; constituent of water-proofing compounds; spotting agent.
Nitrobenzene (*poisonous*)	211° C	VSS	Spotting agent.
*Petroleum ether (Benzine)	40–70° C	I	Spotting agent.
Pine Oil	165° C	I	Constituent of penetrating, wetting, and emulsifying agents employed in kier boiling, scouring, dyeing etc.; solvent for gums and waxes.
*Propylene dichloride	97° C	I	Similar to ethylene dichloride, but has slightly less solvent action and is less toxic.
*Pyridine	116° C	S	Dyeing assistant and wetting agent.
Tetrachloroethylene	119° C	I	Depainting and detarring wool; constituent of rinsing and scouring assistants; spotting agent.
Tetrahydrofurfuryl alcohol	178–180° C	S	Solvent for dyes; wetting and dispersing agent.
Tetrahydronapthalene (Tetralin)	205°C	I	Constituent of scouring compounds; solvent for waxes, resins, rubber, etc.; spotting agent.
*Toluene (Toluol)	111° C	I	Preparation of lacquer finishes; constituent of scouring compounds; spotting agent.
Triethanolamine	277–279° C	S	Combines with fatty acids to form soaps which are strong emulsifying agents and good softeners; penetrant; (combined with cresylic acid) wetting agent in mercerizing; emulsifier, solvent for casein; neutralizing sulphonated oils; silk degumming agent; lubricant for wool, cotton, etc.; conditioning agent
Turpentine oil (Spirits of turpentine)	153–177° C	I	Addition to printing pastes, etc., to prevent frothing; kier boiling assistant; spotting agent.
*Xylene (Xylol)	138–142° C	I	Removing paint and tar; constituent of scouring compounds; spotting agent.

*Inflammable.

ONE of chemistry's greatest contributions to the textile industry has been the development of a wide range of organic solvents. Some of these compounds have been on the market for many years and are familiar to the textile man; others have been made available only recently and their many applications in the manufacture and processing of textiles are not too well known to the average mill man. In the accompanying table, therefore, we have listed 50 of the more common organic solvents, together with their important properties and their chief uses.

Compounds marked with an asterisk are inflammable or explosive and constitute a fire hazard according to the definition given by the "Condensed Chemical Dictionary"; those desginated as "poisonous" are liquids of such a nature that a small amount of the vapor mixed with air is dangerous to life or health or are dangerous by actual contact with the body or by being taken internally in relatively small quantities. While every effort has been made to designate all inflammable or poisonous compounds, lack of such marking does not guarantee that a compound is non-inflammable or that it is non-toxic—particularly in large amounts.

In the column showing solubility in water the following abbreviations are used: *S.*, soluble; *S.S.*, slightly soluble; *V.S.S.*, very slightly soluble; *I.*, insoluble; *D.*, decomposes; *S.I.*, soluble when freshly prepared or after standing over alkali, upon standing for some months or upon exposure to very slightly acid conditions becomes more or less insoluble. Boiling points are given in degrees Centigrade; to reduce to degrees Fahrenheit, multiply by 9/5 and add 32°.

Yes and No . . .

OR MAYBE, SAY EXPERTS IN ANSWER TO PRICE MAINTENANCE QUESTION

"CAN the vicious circle of lower prices, lower standards of living, and still lower prices be stopped by any process within our control, or must we wait on slow moving world-wide economic conditions? If we must wait, how long must we wait—or rather, how long can American business stand the strain? On the other hand, if we can raise prices to the point where the majority of businesses are again making a profit, what will be the reaction of the public? Will they regard it as a desirable move or will they generally, and perhaps violently, resist?"

This was the question posed by Percy C. Magnus, president of the New York Board of Trade, at a pricing conference held by the board May 16.

"If the authorities at Washington had laid down, or had shown intentions of laying down, a clear-cut pricing policy, this conference would not have been called," explained Mr. Magnus. "But Washington has not acted in any definite manner in regard to prices; the codes that have been approved are a riot of pricing inconsistencies, ambiguities, and impracticalities; and, it is the belief of many, the whole pricing phase will be swept out of the codes, which, if it happens, will be a confession of defeat on the part of the Administration in its efforts to handle the pricing situation."

The question induced a variety of answers.

There are always legitimate cases in which goods may be sold below cost, stated Dr. Paul H. Nystrom, professor of marketing at Columbia University. As an example, he cited goods which involve human taste and which become obsolete promptly. Again, reducing costs below current costs of production has often been the way in which new markets have been developed.

Price-fixing means a static condition, continued Dr. Nystrom. This country is not yet ready for such a status. If there must be price-fixing, let it be undertaken step by step, instead of all at once. It is unthinkable that society will permit any group to set its prices without public supervision. It is to be hoped, he concluded, that the artifice of NRA codes will be used wisely so that their benefits will be lasting.

"A very large proportion of the goods sold in this country today are underpriced," declared W. L. Churchill, vice-president of John R. Hall Corp., New York. "This is particularly true of products made of the cheaper materials. Manufacturers of goods of this type ordinarily endeavor to turn them out in large volume, but, in general, they lose money on such lines so that the more they sell the worse off they are. . . .

"An example of an under-priced article is a piece of knit wearing apparel which formerly sold at retail in chain stores for 20c. each. After a pricing study carried out for a group of manufacturers making this article, the price was raised so that it sold generally for 69c. A prominent NRA official criticized us for advising this price rise. In our reply, we asked which was preferable, to continue to pay girls from $2 to $6 per week and compel their employers to operate at a loss, as they did under the 20c. price, or pay a minimum of $15 a week, employ salesmen to find smart-shop markets, and not only give the employers a profit, but also a much larger business, which was the result of the 69c. price.

"Obviously, the increased price was justified in this case, and the same would be true of innumerable other articles now selling at prices so low that they give subnormal returns to workers and all others contributing to production and distribution."

The constructive thought that price maintenance, in its proper sense, comes under the head of stabilizing of standards, was advanced by Wm. Hurd Hillyer, representing J. Frederick Talcott, president of James Talcott, Inc., factors.

"There are three types of occasions," he said, "for stabilization of prices by governmental interference: (1) Lack of funds by the Government; (2) class pressure; (3) an effort to improve the standard of living by improving the general standards of trade practice. . . . The third motive, a striving for fair standards, we may justly say, is the major impulse in our present recovery program.

"It has been objected, by those who oppose a fair regulation of prices, that such regulation is in restraint of trade. But price-cutting is a restraint of trade. Price-cutting is not competition: it is a species of confiscation. The ultimate sufferer is the consumer—who, in our system of economics, is the man who makes as well as uses the goods. Retailer, jobber, manufacturer, all suffer, and the burden is finally borne by the workman or producer, in the form of lowered wages and lessened purchasing power. So the 'vicious circle,' which Mr. Magnus so vividly depicts, runs its devastating course. . . .

"Price maintenance, in the sense of protecting the maker of a superior, branded article from the destructive influence of price-cutting, comes under the head of the proper stabilizing of standards, rather than of price-fixing in the generally accepted sense."

"Leaving out of consideration the monetary measures,

View of speakers table at luncheon to Arthur D. Whiteside in New York on May 7. Left to right: Lucius D. Tompkins, George A. Sloan, Arthur D. Whiteside, Peter Van Horn, John S. Burke, Nathan Straus, Jr., and Frank W. Simonds

such as nationalized gold and the devalued dollar," Mr. Hillyer concluded, "an impartial view of the recovery program to date can result in but one conclusion: Upon the whole, and despite all its frankly admitted deficiencies, it is a step in the right direction and should be therefore classed as a success. The New Deal may yet have much to learn. It may even have to retrace its steps in certain directions, and rebuilt in certain quarters. But because it is in spirit a Square Deal, seeking the ends of justice and fair play for all classes and the more equitable distribution of the fruits of industry, it is destined to endure."

Other Sayings of the Month

NINETY PER CENT of the future success of NRA depends upon code administration, said Arthur D. Whiteside, former Division Administrator, at a luncheon tendered him May 17 by the Code Authorities of New York City. "It's a slow process, but it's worth the effort demanded," he stated. "If we don't succeed through NRA in bringing about the basic purposes of the Act—God help us!"

"The NRA is probably at its lowest ebb right now," he declared in his characteristically frank manner, "but it won't stay this way."

Peter Van Horn, chairman of the Silk Textile Code Authority, presided at the luncheon. Among the speakers was George A. Sloan, chairman of the Cotton Textile Code Authority, who said that "if the NRA brings the wholesome recovery to American business that all of us are seeking, a large part of the credit is due to those men like Arthur Whiteside who were early on the scene with strength of will and purpose and largeness of viewpoint, thereby giving an impetus to the functioning of the NRA along sane and conservative directions."

In addition to being a testimonial to Mr. Whiteside, the luncheon afforded an opportunity for the discussion of a proposed plan for an informal conference of Code Authorities located in New York.

●

"Never, perhaps, have we risen from the depths of a serious depression so quickly as we have in the past year," said Malcolm Muir, president of McGraw-Hill Publishing Co. and former Division Administrator of NRA, at the annual conference of the American Management Association in New York, May 25. "The upswing in the United States started under courageous leadership in Washington. New hope has come to us that we will not only conquer the depression but come out of it better prepared than ever before to avoid serious depressions in the future.

"Now, by maintaining real trade associations as functioning parts of our business and industry, and by following a sane course of business conduct, we have an opportunity to come nearer to setting up a depression-proof industrial system than we have ever been before."

●

In a letter to H. O. King, Division Administrator of NRA, Peter Van Horn, chairman of the Silk Textile Code Authority, stated:

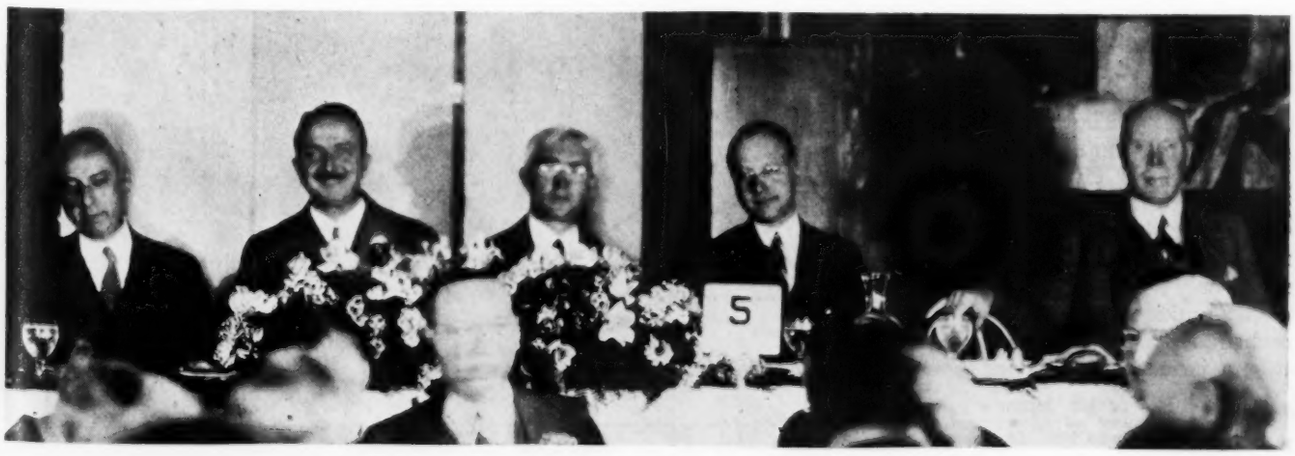
"My personal opinion is that the NRA offers us every possible opportunity to do the two principal things which it is supposed to accomplish: (1) permit business to operate at a fair profit, and (2) employ labor in sufficient numbers and pay sufficient wages so as to increase the purchasing power of the country. I further feel that if we are not successful in this effort of self-government through the NRA, it is our fault and not the Government's nor the law itself."

●

The Cotton Textile National Industrial Relations Board was cited as a successful medium for settling labor disputes, in a radio address, May 11, by James A. Emery, general counsel for the National Association of Manufacturers.

"The National Recovery Adminstrator, by an executive order, March 30 last, requested the 453 industries operating under approved codes to establish an agency for the adjustment of labor disputes, if the code authorized it and the machinery had not been established," Mr. Emery said. "He requested industries without a specific provision for such agencies to create a Labor Relations Committee to handle such disputes. . . . . .

"Under the Recovery Administration, the cotton textile industry has pursued with success a plan similar to that here proposed. Despite great changes in the industry and numerous differences of opinion between employer and employee, no labor dispute of the many which have occurred has escaped from the industry. The National Labor Board, recognizing their success in adjusting differences, has declined to take jurisdiction over any controversy in the industry. May we not, then, profit by these interesting examples and pursue a rational plan which offers voluntary methods of adjustment, appealing alike to our traditions and experience, and thus avoid the pitfalls of legislative control over the delicate relations between employer and employee which invite the agencies of government into an area which employer and employee should keep within their control?"



Intricate and Accurate . . .

MUCH REQUIRED OF NEEDLES AND SINKERS IN PERFECTING FULL-FASHIONED SELVAGE

By M. C. Miller, M.E.
Mechanical Engineer, Manville, R. I.

HAVING explained the tendency of the fabric to pull inwardly or to narrow at the selvages, the tendency for selvages to roll upwardly and inwardly, the tendency of the selvage needle to be misaligned, and the exact action taking place during the yarn sinking and dividing movements,* I shall now attempt to explain the very intricate and accurate movements which the needles and sinkers must make in the work of forming correct and even selvages.

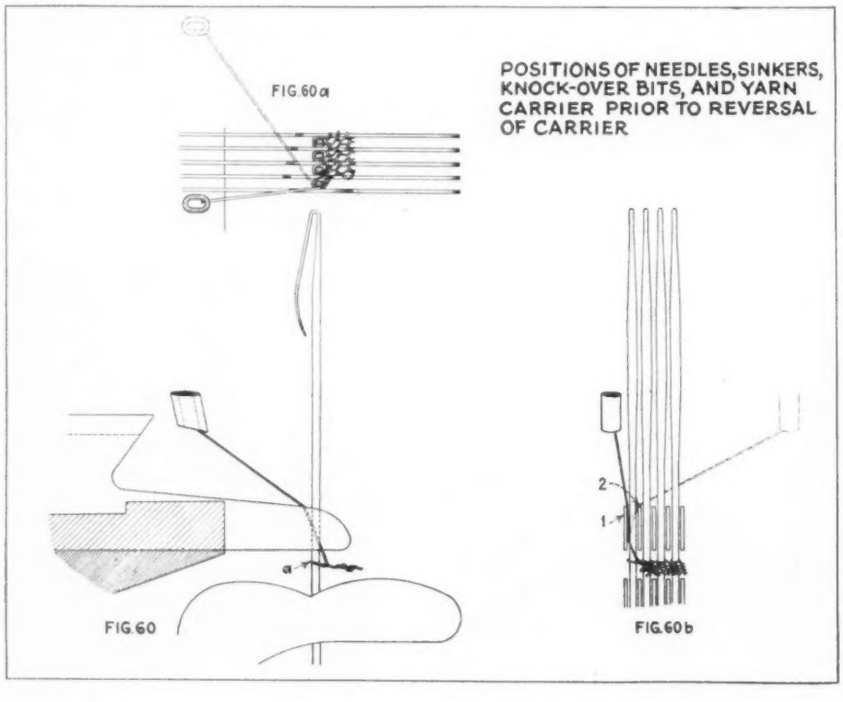
The needles, sinkers, knock-over bits, and yarn carrier of a full-fashioned knitting machine are shown in Fig. 60 prior to the reversal and traverse of the yarn carrier, the elements being in their No. 2 position. (It is suggested that the reader refer to the numbered positions of the elements shown in TEXTILE WORLD Sept. 19, 1931.) The needles have, prior to the position in which they are shown, been moved downward slightly from their No. 1 position, in order that the fabric *a*, through its frictional contact with the needle shanks, will be lowered so as not to contact with the under side of the sinkers during their subsequent movements. The needles remain in the position shown during the yarn-carrier traverse, jack-sinker kinking, and the major part of the dividing-sinker action. The yarn between the end of the carrier tube and the fabric selvage passes behind and along side of the end needle, as shown in plan view Fig. 60*A* and in front elevation Fig. 60*B*.

These figures also show how the selvage loops of the course preceding that which is on the needles are considerably inward from being in line with the end needle.

The position of the yarn at this time is also shown in these figures, Fig. 60 representing the carrier tube somewhat below the top of the jack sinker and above the top of the divider sinker, while Figs. 60*A* and *B* show the carrier tube outside the end sinker, which is a jack sinker. There must always be a jack functioning outside of the last active needle, in order that the yarn of which the selvage loop on the end needle is composed may be properly kinked at the time it is formed, prior to the positioning of the parts shown in these figures. The position of the carrier in relation to the needles and end jack sinker (Figs. 60*A* and *B*) is therefore the same as shown and previously described in Fig. 59 (TEXTILE WORLD, Feb. 14, 1934, page 73), only that there is no dividing sinker under the carrier tube, as the end sinker of the series must always be a jack sinker in order that there will be no danger of engaging the yarn with a dividing sinker when fabric of full section width is being knitted.

The carrier in dot-and-dash lines in Figs. 60*A* and *B* is shown as having been reversed and as having commenced its traverse to the right. In so doing, it has wrapped the yarn around the front of the end needle and over the nose of the sinker positioned inwardly in relation to the outer or jack sinker. This sinker nose, over which the yarn is laid, as shown in dot-and-dash lines in Fig. 60*B*, is therefore a dividing sinker and is numbered 2.

The end jack sinker No. 1, and subsequently adjoining jack sinkers, are thereafter projected between the needles in the manner described and shown in Fig. 59. The first jack sinker that kinks yarn, however, is not the end or No. 1 jack sinker, but the first inner adjoining jack sinker, No. 3 in Fig. 61*B*. This is because the yarn was not laid over the nose of the outer jack sinker and so cannot be kinked by this sinker. Subsequently and immediately thereafter, of course, the other jack sinkers kink yarn between alternate needles, as previously ex-



*Previous articles of Mr. Miller's series on full-fashioned hosiery selvages appeared in the last November and Feb. 14 issues.

plained. The incoming of the first jack sinker to contact with the yarn tends to tighten up the selvage loop held on the end needle, as well as to raise the fabric somewhat on the last few end needles, as will be seen by comparing the position of the fabric on the needles between Figs. 60*B* and 61*B*. Fig. 61 shows the yarn extending from the selvage, inside the end jack sinker, over the nose of the dividing sinker, and into the throat of the second or No. 3 jack sinker.

The plan view (Fig. 61*A*) also shows the laying of this yarn. In this latter view the ends of the dividing sinkers are broken away and the jack sinker inward from No. 3 is also broken off, to show more clearly the position of the fabric loops under them in their offset position toward the center of the body fabric.

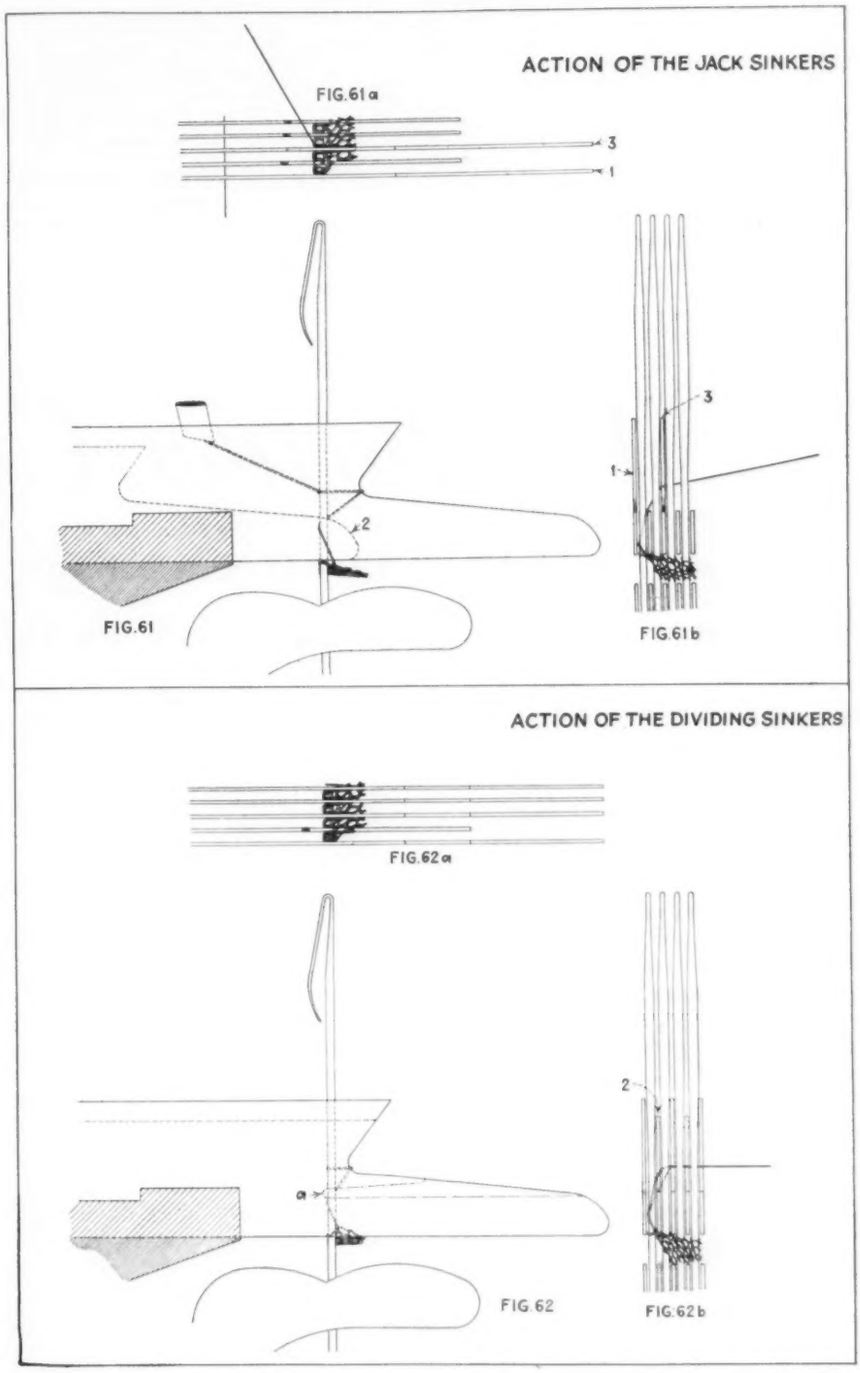
After all the jack sinkers have been projected, the carrier stops on the far end of the section, immediately beyond the outermost sinker of the series, which is the jack sinker beyond the last active needle on the right side of the machine. All the dividing sinkers are brought in toward the needles *en masse*, by the action of the catch bar, with their throats then standing in line with the throats of the jack sinkers. As the dividing sinkers reach the end of their stroke, the needles recede slightly to their No. 4 position, as shown in the previously published Fig. 42, and the elements thereafter are in the position shown in Figs. 62, 62*A*, 62*B*.

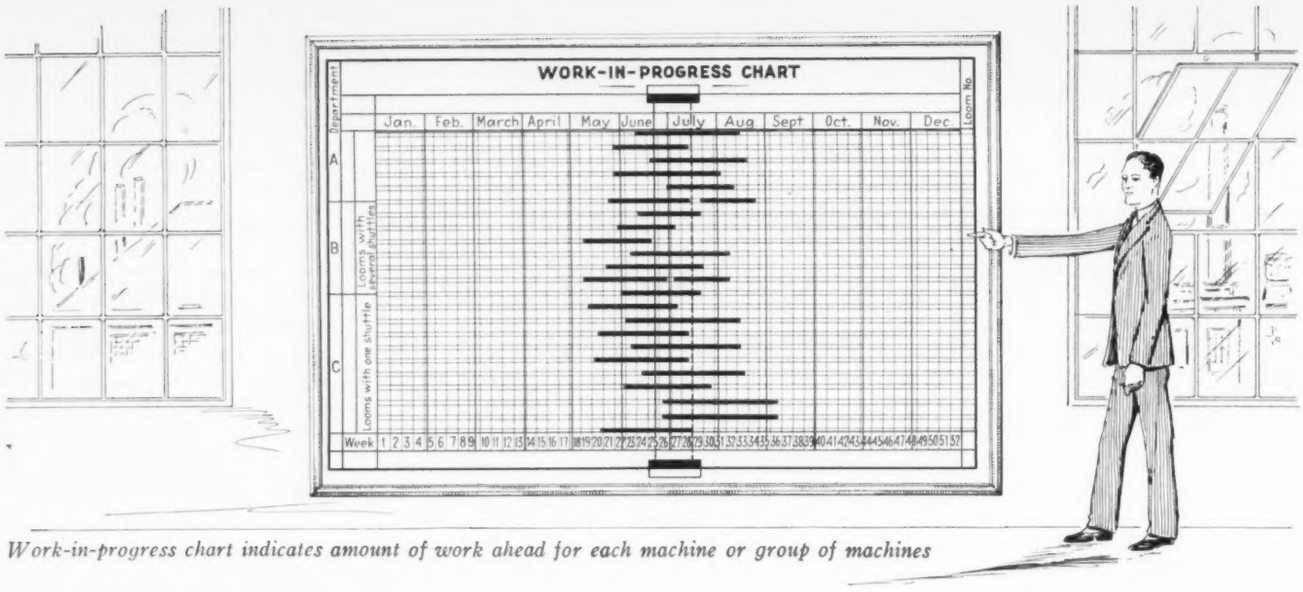
If the noses of the dividing sinkers are of the form shown in solid lines in Fig. 62, the first dividing sinker, No. 2 in Fig. 62*B*, will form a kink of yarn when it is projected. The reason for this is the fact that the reversing yarn was laid over the nose of this sinker, as shown in Figs. 60*B* and 61*B*. As the jack sinker inwardly adjoining this first dividing sinker has measured and is holding the yarn taut between its throat and the selvage, it follows that if the dividing sinker noses are formed as shown in solid lines in Fig. 62, in order for this dividing sinker to get yarn enough to form a kink, the fabric will be pulled upward on the needle shanks as shown in Figs. 62 and 62*B*, particularly the loop on the end needle.

It is to prevent the upward pulling of this loop on the end and adjoining needles that special split dividing sinkers, as shown in dot-and-dash lines at Fig. 62, are ordinarily used, so that the throat formed in their noses at *a* in Fig. 62 will prevent a kinking of the yarn between the selvage and the first active jack sinker and therefore lessen or entirely eliminate the upward pulling of the fabric and particularly the loop held on the needle, as the upward pulling of this loop along its needle shank will seriously interfere with the later pressing of this needle, which will be described subsequently.

It is important to note that the throat (*a*), Fig. 62, of the split dividing sinker is deep enough so that it does not contact with the yarn to kink it while knitting the loosest fabric that the machine is capable of producing.

***WHILE** it is theoretically possible to adjust the full-fashioned hosiery machine to produce perfect selvages and a machine may so operate periodically, constant production of such selvages is practically impossible. In this series of articles Mr. Miller explains the steps which should be taken toward securing the most even wales and the most suitable tension in order that the seams will be smooth and even.*





Work-in-progress chart indicates amount of work ahead for each machine or group of machines

Production Control

IN SILK AND RAYON MILLS

HINGES ON PLANNING DEPARTMENT

By
Otto W.
Bitzenhofer

IN MANY silk and rayon mills, production control is still neglected, the planning and execution of work being left almost entirely to the heads of the various departments. Often these men give little attention to planning the flow of work. As a result, material which has passed through one department may stand for some time before it is taken by the next department. Again, this lack of centralization leads to the accumulation of work ahead in some departments and to a lack of work in others.

On the other hand, certain well-organized plants have installed central planning departments which have the entire responsibility for the routing of work through the plant. In a plant which has such a planning department, the departmental heads have nothing to do with the scheduling of work and are able to devote more of their attention to supervising the operation and maintenance of the machinery. This tends to improve the quality of the product. At the same time, proper planning insures a smooth and steady flow of work through the plant.

It is obvious that in a large mill or in one where there are many separate operations, the planning of work is more difficult than in a small plant or in one which has relatively few departments. However, regardless of the size of the mill or the complexity of the operations, the purpose and functions of the planning department are the same. The primary purpose is to make certain that the raw material is transformed into the finished product in the most expeditious manner. The major functions are the following: (1) to make a work analysis of each order received; (2) to determine what raw material is required and to make certain that it is ready for use; (3) to determine what departments the work will pass through and on what specific machines it will be processed; (4) to determine the working time in hours and minutes necessary for each operation; and (5) to issue work-order tickets giving detailed information for the execution of the work.

The work analysis is under the direction of an expert in the planning department. It is the duty of this expert to analyze the sample which accompanies each order to determine the type, quantity, and quality of warp and filling; the number of picks and ends; the weave; and the bleaching, dyeing, and finishing operations necessary.

The records of the raw-material stock room are kept by the planning department, a suitable form being shown in Fig. 1. This procedure enables the planning department to make certain that raw material is ordered as soon as necessary and, hence, is available when needed. Also it tends to eliminate the necessity for an excessive stock of raw material.

A typical work-order ticket is shown in Fig. 2. This ticket, which goes to the several production departments, contains information as to the operations required in each department, time allotted for each operation, etc. The tickets are divided into sections by means of perforations, so that when one operation is completed (e.g., warping) the overseer can tear off the section corresponding to that operation, note on it that the order has been executed, and return it to the planning department. In this manner, the planning department is kept informed as to the progress through the plant of each lot. It is the usual practice to make the work tickets in triplicate. Two tickets go to the production departments—one being employed for the purposes mentioned,

and the other being filled out by the department heads for use by the cost and accounting departments. The third ticket is retained by the planning department; and as reports on the progress of a lot are received from the several department heads, this progress is noted in the column provided therefor.

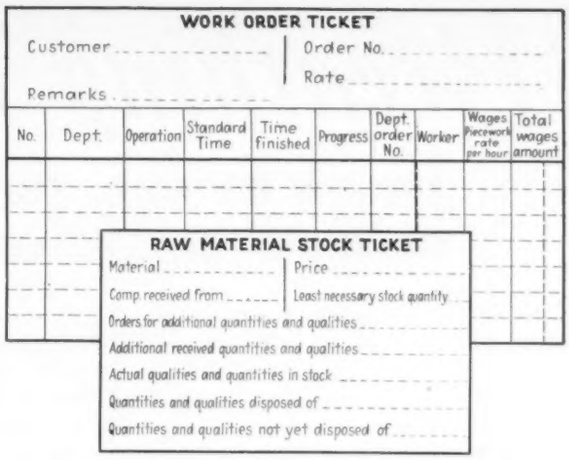
In determining to what particular machine the work shall be assigned, the planning department endeavors to select equipment which is already working on a like or similar type of material and which can be employed without the need for costly or time-consuming changes or adjustments. Likewise, it takes into consideration the amount of work already ahead of the machine. The work-in-progress chart shown at the head of this article is useful in this connection.

At the left of the work-in-progress chart are listed the individual productive machines (or groups of machines) in each department. At the top and bottom of the chart are given the months, weeks, and days of the year. A sliding indicator with two vertical markers is attached to the chart. As soon as an order is received and the standard time has been calculated for each operation, strips of black cardboard corresponding in length to the standard time in days required for the execution of the work on each machine or group of machines are inserted in the horizontal grooves with which the chart is provided. The position of the left-hand marker of the sliding indicator corresponds to the current date. If work, as represented by the strips of black cardboard, does not project beyond the right-hand marker of the sliding indicator, it indicates that the machine has not sufficient work ahead and that more can be apportioned to it.

The standard times required for the various operations are found by intensive work and time studies. The following example shows the way in which each operation is analyzed:

Winding Department	
Actual running time of machines	85 to 88%
Needed time	
Preparation of raw material	0.24 min.
Placing yarn on swifts	0.40 min.
Changing wound bobbins	0.19 min.
Lost time	
Repairing easy yarn breaks	0.17 min.
Repairing yarn breaks on the swifts	0.24 min.
Repairing yarn breaks on the bobbins	0.18 min.
Finding broken ends on swifts and bobbins	0.37 min.
Untangling twisted yarns	0.10 min.
Time required by operator to walk from one section to another	3 to 6%
Other causes for lost time	none

Similar analyses are made of all other operations, and the results are examined to determine whether each subdivision of the operation is necessary or whether it can be avoided. In this connection, three factors must be given consideration and brought in accord with one another. These factors are man, machine, and material. When the avoidable subdivisions have been elimnated, from 12 to 24 additional work and time studies are made of each operation. The shortest and longest times are discarded, and the average time of the remainder is determined for each subdivision of the operation. A time slightly less than this average is adopted as the standard time for a good-average worker. The sum of standard times for the subdivisions of any operation is then taken as the standard time for the complete operation. Standard times for winding are based on 1 lb. of wound material; for warping, on 1,000,000 yd. of yarn; and for weaving, on 1000 picks. It is advisable to establish standard times on as wide a range of materials as possible. Periodically, further work and time studies are made, and the standard times are revised as necessary.



Figs. 1 and 2. Form employed for keeping records of raw materials, and work order ticket.

The standard costs are built up from the following items:

1. Cost of raw material.
2. Labor cost for dyeing raw material.
3. Overhead chargeable to raw material.
4. Labor cost for winding and warping.
5. Winding and warping overhead.
6. Labor cost for drawing in.
7. Drawing in overhead.
8. Labor cost for weaving.
9. Weaving overhead.
10. Total cost of gray goods.
11. Labor cost for dyeing and finishing.
12. Dyeing and finishing overhead.
13. Total cost of finished fabrics.
14. Added cost to allow for risk of seconds, etc.
15. Sales cost.
16. Total manufacturing and selling cost.

The actual cost of each lot is calculated by the cost department, and a comparison made with the standard predetermined cost. This system of production control has been in use for over a year in several large silk and rayon mills and has proved to be most satisfactory.

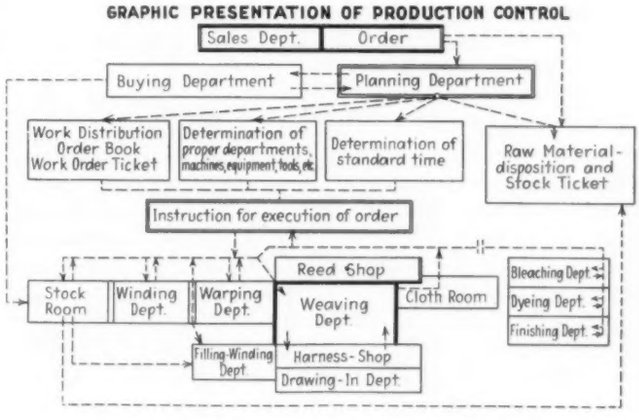


Chart showing relations between planning department and other departments of the organization.

"Breathing Spell"

URGED BY L. L. JONES AT GEORGIA MANUFACTURERS MEETING

W. K. Moore elected president

INDUSTRIAL relations under the cotton textile code were discussed at the 34th annual meeting of the Cotton Manufacturers Association of Georgia, held at the Cloister Hotel, Sea Island Beach, Ga., May 18-19.

W. K. Moore, president, Crown Cotton Mills, Dalton, Ga., was elected president of the association, succeeding L. L. Jones, of Canton, Ga. John H. Cheatham, president and treasurer, Georgia-Kinkaid Mills, Griffin, Ga., was elected vice-president, and William N. Banks, president, Grantville (Ga.) Mills, was elected treasurer. Theodore M. Forbes and C. T. Kilgore, were re-elected secretary and traffic manager, respectively. Directors elected are: Landon Thomas, president and treasurer, John P. King Mfg. Co., Augusta, Ga.; H. O. Ball, superintendent and treasurer, Pepperton Cotton Mills, Jackson, Ga.; Julian K. Morrison, president, Southern Brighton Mills, Shannon, Ga.; W. K. Foster, Clark Thread Co. of Ga., Austell, Ga.

Mr. Jones, in his annual address, urged every cotton manufacturer to take a greater interest in political affairs of the State and the nation. He declared that the wage differential under the NRA code, irregular freight rates and increasing taxes in the South are giving the northern manufacturer a decided advantage. He further stated that the elimination of both processing and compensating taxes "seems the only solution for the protection of the mills.

"We have hardly started under the code and now we are confronted with such legislation as the Wagner-Lewis and Wagner-Connery Bills, the Securities Act and the Exchange Bills and heaven only knows what they will draw on us next," said Mr. Jones. "While there may be some good in some of these bills, there is so much that isn't good, that it becomes next to alarming. It does look as though we should have a breathing spell."

Whiting Williams, industrial relations counselor, Cleveland, Ohio, who is nationally known for his work in studying and analyzing problems arising between employers and employees, presented an enlightening address entitled "Employer and Employee Under the New Deal."

The operation of the State Cotton Textile Industrial Relations Board was explained by Thomas H. Quigley, chairman of the board, and director of Industial Education, Georgia School of Technology, Atlanta, Ga.

The annual banquet was held Friday evening, with President Jones acting as toastmaster, and an address, "What My Double Life Has Taught Me," was delivered by Whiting Williams.

The Saturday morning executive session included a general discussion of state industrial relations problems, led by J. A. Mandeville, of Carrollton, Ga.

The raw cotton department of the association, headed by B. J. Kane, of Fulton Bag & Cotton Mills, Atlanta, Ga., met Friday morning for group discussions.

The week after the meeting, the association released a resolution opposing the enactment of a 30-hour week law, holding that this would be injurious not only to industry but particularly to labor, and pointing out that there is the necessary flexibility in fixing hours of labor under the present cotton textile code to meet any changing conditions and needs as they arise.

In another resolution the association opposes the enactment of the Wagner Labor Bill. The organization also vigorously protests the burden placed upon cotton through NRA costs and the processing tax as compared with competing fibers which do not carry that tax.

In addition, a resolution was released expressing the gratitude of the association to W. D. Anderson, Sr., W. J. Vereen, and Cason J. Callaway, for their efforts and services in representing the industry in connection with the cotton textile code.

Anglo-Jap Quotas

AROUSE WIDESPREAD INTEREST

THE decision of the British Government to establish quotas on foreign cotton goods and rayon goods in the principal Colonial markets has attracted wide attention, states our Manchester (Eng.) correspondent. The decision has been influenced by the dilatory attitude adopted by the Japanese Government in regard to negotiations. The quotas, although applying to all foreign countries, are likely to affect only Japan detrimentally as they are based on the shipments of the 1927-31 period, before Japan developed her export trade on such a huge scale. The move is welcomed in Lancashire, though the actual benefit in increased business is problematical.

Other European countries may benefit, as they have also lost ground to Japan in recent years in many of the British Colonies. The most important country affected by the quotas is British Malaya, although it is expected that India, which is not restricted by any quota, will secure a proportion of the trade resulting from the diminution of Japanese business. One factor which cannot be overlooked is the way in which Japanese goods have sold to natives, who might otherwise have gone naked had there not been such cheap material available. This is one of the obvious complications in estimating the advantages of the quota scheme, which is particularly prominent in the case of rayon goods. It is suggested that the British Dominions, such as Canada, Australia and South Africa, may adopt a similar quota policy.

SECURING THE ADVANTAGES AND MINIMIZING THE HAZARDS OF

By Floyd H. Rowland

A Uniform Cost Method

MANY companies have somehow in the past managed to operate successfully without the utilization of modern cost methods. Part of the explanation lies in the fact that there have existed few trade restrictions, such as the present regulations of hours, wages, selling practices, etc. The tendency of the times, however, places manufacturers on a more uniform basis; and the business which desires to be successful must be so by virtue of the merit of its products and the soundness of its management.

A superficial comparison of costs will disclose a wide disparity for exactly the same product. Although there is difference of opinion whether industries whose NRA codes have provisions affecting "selling below cost" can ever operate and police such a plan, it is nevertheless desirable that uniform principles of determining costs be adopted and installed by manufacturers. Uniform cost data may have many uses as the government further develops its plans for guiding or controlling industry.

Although in drawing up the method, the cost principles should be determined and the bases for determining the costs established, the final details of installation should not be specified. These should be adapted to the needs of the individual company. In industries where insistence might be placed upon uniform methods of installation, the small company would be over-systematized and the large concern would be provided with insufficient segregations to care adequately for the ramifications of its organization.

Most uniform cost methods heretofore designed have been concerned primarily with the purpose of determining the cost of the product and very little with the equally important purpose of aiding managerial control.

Hazards to Be Considered

Executives should carefully consider the hazards to be faced in the operation of uniform cost plans and should study them with regard to their workability and effect. The following are a few potential sources of trouble:

1. *What cost is to be used in defining "selling below cost"?* Wide differences of opinion exist as to what cost is to be used. Some codes determine this fact, while others do not. Where the basis of the low-cost plant is used, the result is an impossible profit situation for higher-cost plants. High-cost plants may, by the quality of their product, service rendered, etc., justify their existence.

Where the higher-cost plant is used, encouragement to efficiency is reduced. An average cost for the industry is fair neither to the high- nor to low-cost plants.

Selling below cost may reasonably mean selling below the individual mill's own cost, calculated in accordance with uniform principles. Most plans seem to initiate injustices as great as those they attempt to correct, but the uncontrolled situation is also unjust and the high cost mill, generally speaking, must have advantages to compensate for the initial inequality. NRA officials have indicated that "reasonable" cost will be used. As yet, no definite information has been advanced as to what will constitute reasonable cost.

2. *Is distribution expense included as a part of costs?* The history of product costs has been concerned largely with manufacturing costs. The impression seems to be that administration and selling expense are matters to be treated lightly, tacked onto manufacturing costs when convenient, and omitted when inconvenient. Yet, distribution expense has a vital effect upon profits and is truly a part of the costs to be considered in establishing an approach toward what constitutes selling below cost. Its omission sets up a playground for those given to the indoor sport of cost juggling.

3. *What is the relation of the chart of accounts to the uniform cost plan?* A standard classification of accounts is only one of the problems in any comparative study of costs. Transcending it in importance are the definitions of principles pertaining to items classified and their inter-relation.

4. *Determination of reasonable future plant capacity.* In industries where an excess plant capacity exists, an analysis should be made as to what constitutes a reasonable plant capacity. By the time need is found for any unused capacity, technical improvements will probably have rendered it obsolete; hence no importance attaches to it. Companies with a number of unused plants should not be permitted to include depreciation on the entire amount of such property as a part of cost in deciding their reasonable cost.

5. *Determination of fair plant values.* Care should be exercised to prevent the inclusion in cost figures of depreciation based on inflated plant values. Cost manuals should prescribe methods for fixed-asset valuations.

6. *Use of standard costs.* Standard costs form an excellent basis for a uniform cost manual and are to be preferred to the average cost method. Furthermore, the standard-cost plan can readily be used for managerial control.

What to Do About It

While this article will not describe any specific cost method, it is nevertheless within its scope to indicate certain fundamental steps to be taken when code administration involves cost determination:

1. *Representation on cost committee.* Every company should see to it that it is represented on the cost committee of its industry by some one qualified to present its views, if not by one of its own executives.

2. *Competition with other industries.* It is essential to ascertain the effect of competitive industries. The interrelation between such competitive groups as cottons, silks, and rayons, for example, necessitates the study of the other branches of the textile industry in planning the cost manual for any one of them. Will the cost method adopted permit a competitive industry to undersell?

3. *Costs for managerial control.* Any industry which adopts a cost manual providing only for product costs loses one of the major benefits to be obtained from a cost system. Cost methods can provide for the managerial control of expense with little additional effort. Without the use of costs for managerial control the proper product costs cannot be maintained, and increased costs may be expected to follow.

4. *Can small companies use uniform cost methods?* The small company need not fear the expense of operating a properly designed cost method. A plan providing for both product costs and managerial control should not be more expensive to operate than one without the latter provision.

Blending After Cleaning DISCUSSED

BY SOUTHERN CARDERS

J. O. Corn, who led discussion by S.T.A. Carders

CARDING problems, with special emphasis on opening and blending processes, were discussed at the spring meeting of the Carder's Division of the Southern Textile Association, held in the Parker High School auditorium at Greenville, S. C., May 19. J. O. Corn, superintendent, Pacific Mills, Columbia, S. C., chairman of the division, led the discussion. H. H. Iler, plant engineer, Union Bleachery, Greenville, S. C., president of the Southern Textile Association, opened the meeting with a brief address of welcome.

Although the first question, "Have you changed your method of mixing or blending since 1932?" was answered unanimously in the negative, it incited a great deal of discussion. Chairman Corn recommended that cotton be blended after cleaning instead of before, although the opposite is generally the rule in this country. R. E. Lindsay, service engineer, Saco-Lowell Shops, named several mills which have installed this new method of blending after cleaning with very satisfactory results, all of the plants claiming evener and cleaner laps. G. V. Frye, Florence Mills, Forest City, N. C., said that he is using a system which consists of a bale-breaker, vertical-opener, Woonsocket cleaner, and Centrif-Air machine. David Clark, publisher of the *Textile Bulletin*, remarked that in England it is the general practice to blend after cleaning; and he later declared that superior skill in blending, rather than cheap labor, is the primary reason why America is losing the Chinese low-price cloth market to Japan.

O. A. Sullivan, superintendent, Gaffney (S. C.) Mfg. Co., suggested that it is a good plan to have the blending equipment in the picker room where it can be watched carefully by the overseer. W. W. Cobb, superintendent, Norris Cotton Mills Co., Cateechee, S. C., advised letting cotton stand for at least a day after opening, in order to become fluffier and easier to blend. Robert Huskey, Whitney (S. C.) Mfg. Co., stated that if he were given an opportunity to place 12 hoppers in his system, he would place them after the cleaning equipment.

In answer to the question, "What bad results have you experienced from one-process picking?" Mr. Sullivan stated that he has both one-process picking and an older system in his plant, and that the former requires considerable more grinding to produce equivalent results. Mr. Frye reported that his one-process system requires no more grinding than the other systems. Mr. Hammond pointed out that if the hopper is not full at all times, uneven laps result. J. M. Gunter, Anderson (S. C.) Cotton Mills, said that uneven laps could be eliminated by using a controlling hopper. Mr. Sullivan then declared, that, in addition to requiring more grinding, one-process picking makes cotton harder to card and blend. Mr. Corn said that extra grinding and difficult carding and blending are caused by the fact that usually there are less blows per inch in one-process picking, and more beaters should be installed where necessary. The thick places which often form about 2½ yd. from the end of a lap coming from a made-over picker were decided to be due to the cotton becoming compressed when the machine knocks off and stands idle. This can be overcome, according to Chairman Corn, by attaching a spring-brake on the clutch rod to the evener-belt, so that when the machine re-starts, the belt will start from its correct position.

It was the consensus that the chief reason for oiling cotton is to keep down the dust and fly throughout the mill. It was unanimously agreed that oil does not increase the breaking strength. About 50% of the members use oil, and these reported that the proper quantity of oil is 0.3% to 0.5% on the weight of the cotton. Mr. Huskey reported that in the eight years he has been using oil, the weight of the lap has been cut down about ½ lb. Others reported similar reductions. Many seemed to think oil tends to help yarn-number uniformity.

At this point, G. H. Dunlap, of Clemson College, read a brief note from H. H. Willis, dean of the Clemson College School of Textiles, describing some experimental work pertaining to the oiling of cotton. Mr. Willis reported that 0.2% to 0.3% oil may be added, with good results, at the point where the web is condensed to sliver. A fugitive or fast dyestuff may be added at this point, for the purpose of identifying the staple or twist or for imparting a permanent color to the cotton. Mr. Dunlap stated that he has noticed that threads are straighter and twist set more firmly in experimental yarn made from oiled cotton.

Opinion was divided as to whether a card should be ground with the doffer running at normal speed or faster. Mr. Huskey reported nine years of good results from grinding at a normal speed. Mr. Iler contributed the information that it is common shop practice when grinding a surface on rolls, to have the roll turning slowly and the grinder rapidly. It was agreed that the doffer does not need so much grinding as the cylinder. Mr. Clark suggested using magnified photographs of the wire points as a method of determining proper grinding. Several of the carders said that they still rely on touch and sound.

Only one member, W. H. Glenn, superintendent, Whitney (S. C.) Mfg. Co., mentioned having had any practical experience with a roving testing machine, and he reported it rather impractical for his work.

Safety and Lubrication

AMONG VARIED SPINNING AND WEAVING TOPICS DISCUSSED AT GREENSBORO

SPINNING, slashing, and weaving problems were discussed, and addresses on personal safety in the mill, lubrication of textile machinery, and effects of the NRA on business were presented at the spring meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association, held at Greensboro, N. C., May 26. S. T. Anderson, Carolina Cotton and Woolen Mills Co., Draper, N. C., chairman of the division, presided, and Claude B. Williams, Fieldale (Va.) Mills, led the general discussion.

"Safety is a two-sided proposition," declared E. G. Padgett, director of safety, North Carolina Industrial Commission, in his address, "Safety in Textile Plants." He said that the two accepted methods of securing safer working conditions are (1) by removing physical hazards and (2) by educating the operatives in safety principles and first aid. He said that investigations have shown that 98% of all industrial accidents are preventable, and he further stated that 21% of the accidents occurring in North Carolina textile plants are due to unguarded or dangerous machinery, while 79% are due to non-mechanical factors, such as falling, stepping on sharp bodies, or handling heavy materials. Mr. Padgett suggested that overseers be made responsible.

H. L. Marlow, of the Texas Co., in presenting his address, "Textile Lubrication," said that as machines continually improve and speeds increase, it is only logical that lubricants for these machines should improve, too. In the discussion led by Chairman Anderson, which followed Mr. Marlow's talk, J. V. McCombs, Randolph Mills, Inc., Franklinville, N. C., asked why two oils of the same appearance, fluidity, and viscosity often attain a different degree of clarity when used at the same temperature. Mr. Marlow explained that cloudiness might be caused by a difference in pH, in saponification, in specific gravity, or in the amount of wax. L. V. Andrews, Martinsville (Va.) Cotton Mill Co., Inc., said that he uses only four oils in his mill; namely, oils for electric motors, looms, spindles and comb boxes, and rollers. In answer to a question, Mr. Marlow said that, theoretically, a graphite base may be used satisfactorily in connection with a regular lubricant, but that, practically, it is very difficult to secure even distribution and to prevent the particles from settling out of the oil.

S. T. Anderson, Chairman of division, who presided

During the general discussion the following question excited considerable comment: "Has anyone changed from twine to steel heddles, and, if so, how do stops compare?" Mr. Andrews reported that, in changing from cotton-twine harness to steel heddles, end breakage in his plant increased 50% on looms weaving 30s-warp print cloth and running at an increased speed. G. W. Chaney, Carolina Cotton and Woolen Mills Co., Wearwell Mills, Draper, N. C., said that he has been using steel heddles for five years with excellent results. It was finally agreed that the cause of Mr. Andrews' excessive end breakage is due, not to the steel heddles, but to the increased speed of the looms.

It was the consensus of opinion that Western cotton causes no more shedding in weaving than Carolina.

J. O. Newton, Draper-American and Wearwell Sheeting Mills, advised removing the middle roll of long-draft spinning equipment before cleaning and using an air-blower for this purpose. It also was suggested that the steel rolls be cleaned with either steel brush or hard waste and kerosene, and that the leather rolls be cleaned with a light brush. Most of the members preferred 55 to 60% humidity for long-draft spinning. W. J. Jennings, Mineola Mfg. Co., Gibsonville, N. C., complained that he is continually troubled with cockled yarn in his spinning, especially on dark blues. C. B. Davis, Proximity Mfg. Co., Greensboro, N. C., suggested spreading the pins between the upper and lower bands so that the roving can pass through more easily.

Opinion was divided as to the advantages of cork rolls over leather. Mr. McCombs declared that the cork rolls are absolutely necessary for the heavier numbers. Regarding another question, Culver Batson, Consolidated Textile Corp., Lynchburg, Va., said that he has investigated the percentage of moisture in the warp while on the slasher and finds it to run about 8½% and to vary little upon moving of the warp into the weave room.

In discussing the variation in "percentage of size from beam to beam from slashers," Mr. McCombs described an automatic size-circulating system in which, he asserted, the amount of size never varies more than ¼ of 1%, explaining that 1% variation is common in the regular hand systems. This particular system, according to Mr. McCombs, is functioning so satisfactorily that six slashers are now doing the work of seven.

At the luncheon following the technical session, Luther H. Hodges, Carolina Cotton and Woolen Mills Co., Spray, N. C., delivered an address on "Some Effects of the NRA on Business." "The effects of NRA on business," he said, "have for the most part been tonics of spring sunshine in the form of renewed activity, increased volume, and a re-appearance of profits and dividends, a new day for workers, and renewed faith."

J. O. Newton, of Draper, N. C., was elected to the executive committee, succeeding L. V. Andrews, whose time had expired. Danville, Va., was tentatively selected as the location of the next meeting.

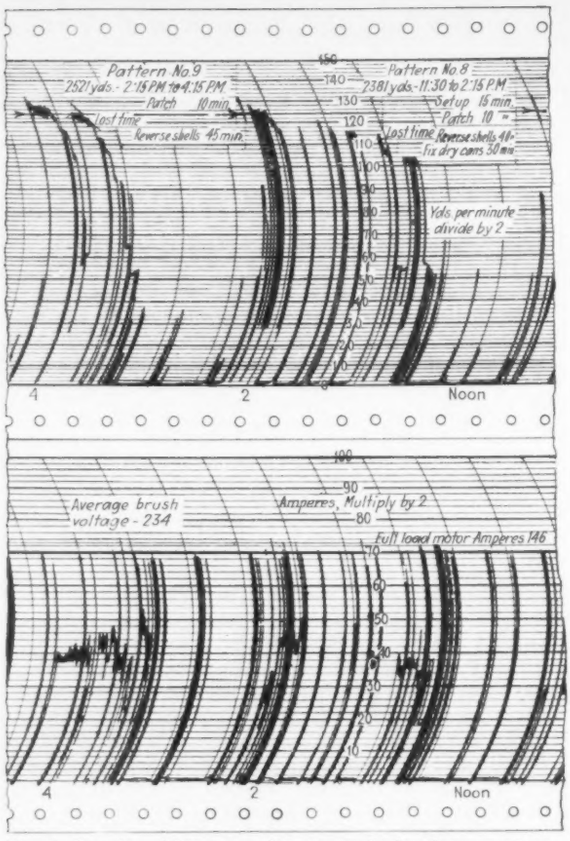


Fig. 1. Results of load-speed tests on dual-voltage motors.

Dual-Voltage

By C. J. E. Harte and C. F. Head

◆*Changed conditions in the textile industry have rendered obsolete many of the printing-machine drives which formerly were satisfactory. As a result, important developments have taken place in methods and equipment for driving the new multi-color machines which have been installed recently in several plants. In this article Mr. Harte, electrical engineer, American Printing Co., and Mr. Head, industrial sales division, Westinghouse Electric & Mfg. Co., discuss the application of dual-voltage drive to printing machines. A subsequent article, which will appear in an early issue of* TEXTILE WORLD, *will describe another innovation in driving this type of equipment.*

TO meet the ever-increasing demands for more and more intricate designs, improvements have been necessary in the art of cloth printing. These demands caused previous long runs of two and three colors on standard materials to give way to short runs of many colors and a great variety of designs. Three-color machines were, and still are, necessarily being replaced by new machines capable of printing at least five to eight colors in order that the printers can meet these requirements. In fact, machines capable of printing as many as twelve to fourteen colors are not uncommon.

Such changes in production schedules and method of printing did not at first seem to impose any exacting duty on such motor and control equipment as was applied to drive the earlier multi-color printing machine. Motors operating over a range of 2 to 1 with their speed being controlled by means of a drum switch and resistance were satisfactory for driving the two- and three-color machines and seemed to be adequate to meet the new conditions. Experience soon demonstrated, however, that motors capable of operating over a wide range of speeds with automatic-control equipment that was reliable, and conveniently located in respect to the operator, were actually required if production was to be maintained.

The American Printing Co., Fall River, Mass., in selecting motor and control equipment for new eight-color cloth printing machines made exhaustive tests on machines in operation, and by so doing, determined under actual conditions the characteristics of the motive equipment for these machines. The results of a series of such tests are given in Table I. These tests were made on various 25-hp., 300/900-r.p.m., 230-volt, d-c. motors. A two-scale recording meter which gives results similar to those shown in Fig. 1 was used in making the test.

A study of the power conditions in this plant, coupled with such tests as the above, resulted in the purchase of 40-hp., 3-to-1 speed, 230-volt d.c. Westinghouse motors with automatic dual-voltage control for driving the new printing machines. It will be of interest to note that the following factors influenced the selection of this equipment.

1. A 115/230-volt source of power was available, although not in use. Thus an earlier investment in generating equipment could be capitalized. In addition, the synchronous motors to which these generators (originally engine driven) had been coupled would in themselves provide an economy by raising the plant power factor.

2. 3-to-1 speed motors, smaller in physical dimensions and, therefore, lighter in weight and less costly than 4-to-1 or 5-to-1 speed motors operating at a single voltage would have a speed range of 6 to 1 when operating at two voltages. This increased range of speed would provide the flexibility necessary if the printing machine was to meet

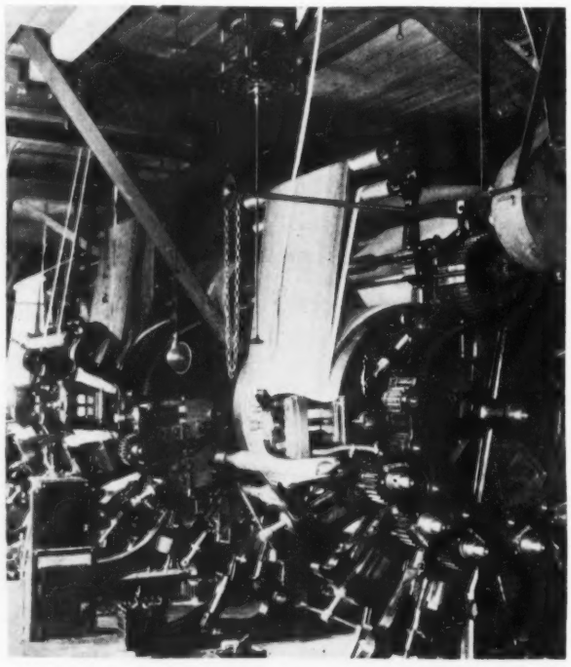


Fig. 2. Eight-color printing machine showing mounting of rheostat and pushbutton station.

Drive

MEETS EXACTING DEMANDS OF MODERN MULTI-COLOR PRINTING MACHINES

successfully the demands of current production schedules. Fig. 1 gives the results of load-speed tests on a 40-hp. dual-voltage motor and demonstrates the versatility of the printing-machine drive which was selected. It also serves to indicate the severe duty imposed on the equipment by repeated starting, stopping, or slowing down of the motor during the period of printing.

3. Complete control of the speed of the motor could be obtained from a single, hand-operated rheostat. Fig. 2 shows the rheostat mounted on the ceiling with the handle extended to within reach of the operator. Of importance to the operator is the fact that pre-determined speeds can be obtained and also duplicated by means of this rheostat regardless of a variation in load on the motor (the diameter of the copper shells, the number of shells in use, and the set of the rolls determine the load on the motor at any one time). This was not possible where speed control was obtained by means of resistance in the armature circuit, as the load on the motor then determined the speed.

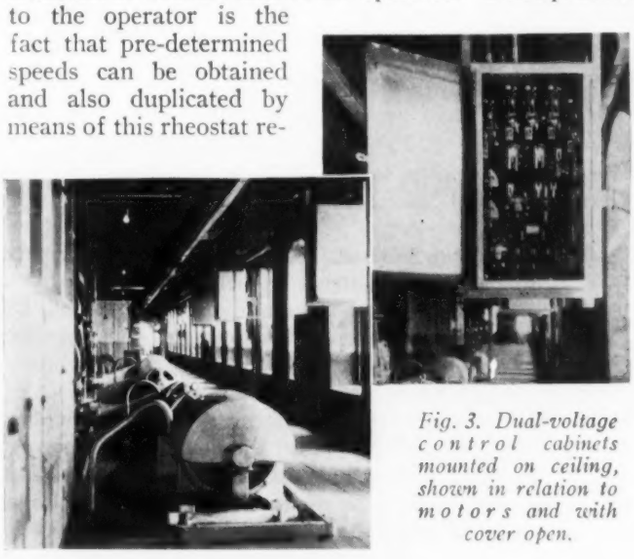


Fig. 3. Dual-voltage control cabinets mounted on ceiling, shown in relation to motors and with cover open.

4. Control of the operation of the motor could be obtained by means of a pushbutton station mounted on the printing machine accessible to the operator at all times. This station would provide for starting, stopping, inching, operating of the motor at low speed, or operating of the motor at a predetermined high speed. This pushbutton station is also shown in Fig. 2.

5. The complete control, other than the rheostat and pushbutton station, but including all necessary resistors, could be assembled in a single cabinet which could be mounted in a convenient place on wall or ceiling. This arrangement would make accessible valuable floor space around the printing machine which might otherwise be occupied by some form of control. The dual-voltage control cabinet mounted on the ceiling is shown in Fig. 3.

6. The cost of installation would be reduced to a minimum due to the elimination of complicated wiring.

7. Maintenance would be reduced to a negligible item due to the fool-proof construction possible with automatic dual-voltage control, which reduces the human element to a minimum in operating. (Drum controllers with resistors where used were in constant need of attention due to the severity of the service.)

8. Smooth acceleration and deceleration of the motor could be obtained by the use of suitable relays, thereby eliminating the possibility of tearing of the cloth.

The motors and control selected fill all these conditions. In addition, the control equipment provides for dynamic braking in the "off" position, full-field starting, thermal overload protection with instantaneous trip on short circuits and with automatic or manual reset, and disconnect from the main bus by means of a fused knife switch. The dynamic braking and starting resistors are "edge-wound" and unbreakable. This control provides the following speed range without resorting to armature resistance and its limitations:

Steps	Voltage	Motor R.P.M.	Cloth Speed
20	115	250/500	12/24
40	230	500/1500	24/72

Armature resistance is used, but only for "jogging" service or during the period of threading-in to obtain a speed of approximately 125 r.p.m. on the motor or 6 yd. per min. on the printing machine. (It is to be noted that the armature resistance cannot be left in the circuit, due to the fact that when the "inch button" is pressed and not released promptly, the motor will proceed to accelerate to 115 volts on the armature and full field. This method of controlling the inching operation provides protection against failure of the motor to start should excessive set be used on the shells, by automatically cutting out armature resistance until the motor does start. It is of importance to note that the printing machine operator has readily adapted himself to this method of inching.)

Some of the obsolete printing machine drives now in operation can undoubtedly be increased in efficiency to a limited degree by setting the top speed of the motor to correspond more nearly to that of the printing machine, thereby making it possible for the motor to operate without resistance in the armature circuit so great a part of the time. In addition, motor-protective equipment can be installed where now omitted. Regardless of such alterations, the maintenance problem will still be present, particularly with the manually operated types of control. Dual-voltage control with motors of proper rating, however, seems to meet satisfactorily the requirements for driving multi-color printing machines under present exacting conditions.

Table I. Results of tests to determine characteristics of motive equipment for printing machines.

Total Print Machine Colors	Nips in Use	Yards Per Minute	R.P.M. of Motor	Hp. Input of Motor
[7	3	18.6	118*	5.2
[7	3	52.0	310	16.6
[6	4	21.0	152*	6.1
[6	4	43.3	371	12.8
[10	4	17.0	140*	5.3
[10	4	66.0	558	20.9
[10	8	21.6	226*	11.0
[10	8	82.0	870	41.3
10	8	47.3	690	23.2
12	8	47.0	875	23.8
8	4	64.0	1230	24.6
8	4	55.0	1050	29.0

Bracketed results obtained on same machine.
*Speed obtained by armature resistance.

Less Fuel

SOUTHERN MASTER MECHANICS DISCUSS POWER-PLANT EFFICIENCY

STEAM and electrical testing equipment were discussed at the spring meeting of the Master Mechanics Division of the Southern Textile Association, held at Charlotte, N. C., May 12. The program, which was in charge of E. E. Edmiston, master mechanic of the Mooresville (N. C.) Cotton Mills, and chairman of the division, included addresses on "Efficiency in the Use of Fuel in Steam Plants" and "Short-Center Drives."

E. E. Edmiston, retiring chairman, Master Mechanics Division, S.T.A.

L. W. Misenheimer, master mechanic of Southern Bleachery, Inc., and Piedmont Print Works, Taylors, S. C., was unanimously elected chairman of the division to succeed Mr. Edmiston, whose term had expired. Mr. Misenheimer said that it would be his aim to encourage freer interchange of opinion among the master mechanics.

J. W. Fox, of the Duke Power Co., presented a committee report on power gages, meters, and testing equipment, reading letters from Robert H. Chapman, of J. E. Sirrine & Co., and W. J. Ligon, of Anderson (S. C.) Cotton Mills, both of whom were unable to attend the meeting.

Mr. Chapman, having been asked by the committee to recommend equipment necessary efficiently to check and control steam-power-plant operation, suggested that a plant producing more than 300 hp. will find it economical to install the following equipment: coal scales, draft gages, thermometers, CO_2 recorders, and boiler meters or steam flowmeters. In the discussion which followed these recommendations, Charles A. Spencer, of Union Bleachery, Greenville, S. C., said that the type of coal-weighing apparatus, whether of the platform variety or with automatic weighing balance, should depend entirely upon the size of the plant. It was the consensus that it is as important for a mill to weigh its coal as its cotton, and that testing equipment should be considered a plant investment and not a supply.

In answer to a question, E. E. Williams, of Duke Power Co., stated that for very accurate records, both steam gages and water gages are necessary, because of losses through safety valves and other outlets.

Mr. Fox next read Mr. Ligon's paper, in which certain equipment was recommended as being satisfactory for general electrical testing in a cotton mill of 85,000 spindles, where the current may vary from 110 to 2,300 volts, and the motors may range from ½ to 450 hp. This equipment consists of one special-type indicating and recording wattmeter, two current transformers and either one or two potential transformers. An indicating voltmeter for high voltage readings was suggested to supplement the other equipment, all of which can be purchased for approximately $450. For trouble hunting, a portable current transformer, connected by means of a lead to an indicating or recording ammeter, and used with a voltmeter was recommended.

E. M. Williams, engineer of the Clinchfield Coal Co., Spartanburg, S. C., described in detail the set-up and equipment necessary for the most efficient operation of three types of steam power plants: (1) hand-fired, horizontal return tubular boilers rated at 150 boiler horsepower; (2) horizontal return tubular boilers rated at 250 boiler horsepower; and (3) large boilers rated at 500 boiler horsepower or more.

Mr. Williams pointed out that in order to get the best results from the 150-hp. boiler, the combustion chamber should exend from the boiler to the level of the ashpit, and all the way to the rear of the furnace, with the boiler located not less than 48 in. above the grate. The 250-hp. plan should have, as part of its equipment, coal scales, draft gages, steam flowmeters, and air flowmeters or a recording CO_2 thermometer. The 500-hp. plant should be fired either with a multiple-retort stoker or with a powdered-coal stoker. The new stokers were said to balance coal flow and air flow, so as to increase efficiency 2% and rating 30%.

Before concluding his address, Mr. Williams admonished the mechanics to remember the old saying, "Keep the boiler and furnace clean and tight," declaring that $\frac{1}{32}$ in. of soot on boiler tubes will cause a fuel loss of only 9½%, yet $\frac{3}{16}$ in. of soot will cause a fuel loss as great as 69%.

R. W. Drake, of Rockwood Mfg. Co., Indianapolis, Ind., in the absence of George Rockwood, of the same company, spoke on "Short-Center Drives." Mr. Drake said that a textile mill needs the following in a short-center drive: (1) constant and invariable speed, (2) minimum of idle time due to breakdowns, (3) low maintenance cost.

Mr. Drake went deeply into the details on the subject of short-center drives applicable from motor to machine or group shaft, tracing the development, and describing advantages and limitations of gears, gravity idlers, silent-chain drives, multiple-V-belt drives, and the Rockwood drive.

Harnessed Temperatures

MODERN AUTOMATIC-CONTROL INSTRUMENTS CUT COSTS AND IMPROVE QUALITY

By W. R. Clendinning

"FIRE," runs the old adage, "is a good servant, but a poor master." Steam, too, is an invaluable servant; but, if it is allowed to run unbridled, it may be a costly and destructive one. Uncontrolled temperatures in dyeing, sizing, drying, and other textile operations likewise may be wasteful of fuel, give rise to uneven results, and even cause irreparable damage to the material being processed. And regulation of temperature, until comparatively recent years was entirely up to the operator who, at best, had only the well-known but often neglected hand thermometer to aid him.

Today, however, instruments are available which keep a record of the temperature, and even operate steam valves to maintain it at any desired point. These control instruments cannot perform miracles, they cannot supplant the operator; but, properly applied, they supplement human skill and enable the production of better and more uniform work at a lower cost.

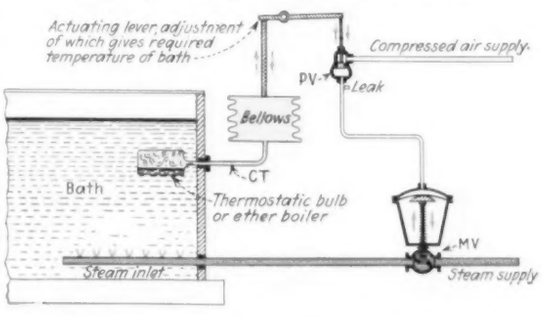
Of the three general types of instruments used in controlling temperatures, the indicating thermometer is of chief value to the machine operator, keeping him informed as to the temperature of his bath. The recording thermometer gives the foreman or other plant executive a check on the operator, and is of service in establishing standards of operation and in placing blame for failures in processing. The automatic temperature controller (with which may be incorporated a recording device) relieves the operator of all responsibility for the maintenance of prescribed temperatures.

Unfortunately, temperature is but one of several variable factors in textile processing. Therefore control of this factor alone will not give perfection. In many instances, however, it will result in decidedly less variation in the quality of the material processed and, at the same time, will permit marked economies in operating costs. That is, the combination of automatic temperature-control instruments with intelligent operation will, in general, have one or more of the following advantages: (1) elimination of waste and/or improvement of product; (2) increase of production and/or saving in labor; and (3) saving in fuel cost.

There is such a thing as over-instrumentation; and, without doubt, installations of control instruments have been made which can never hope to "pay for themselves" in any way. Other installations have returned the investment in less than a month. In the following paragraphs we shall consider a number of outstanding applications, in each of which the automatic-control instrument has proved itself to be of definite advantage. It will be impossible, of course, to discuss every textile process in which temperature control is beneficial. The examples to be given are sufficiently typical, however, to suggest other worth-while applications.

Cotton and Rayon Sizing—An operation in which "hand" methods of temperature control are inefficient and in which over-instrumentation is well-nigh impossible is the sizing of cotton, rayon, or wool warps. Uniformity in sizing is a prerequisite to satisfactory weaving; and temperature control is vitally important if this uniformity is to be obtained. Likewise, worthwhile savings in steam can be anticipated. One test, for example, shows that automatic temperature control in sizing cotton yarns resulted in a 16% reduction of warp breakage on the loom, enabled higher slasher speeds, allowed the amount of starch to be reduced from 180 to 160 lb., and reduced steam consumption in the size box and drying cylinders. For best results in sizing, a time-temperature controller—designed to raise the cooking temperature gradually in accordance with a predetermined schedule and then to maintain it at a specified point throughout the run—should be installed on the starch kettle. On the size box should be installed an automatic steam regulator; and on the dry cans, either a temperature controller or a pressure-reducing valve—one for each can—together with a recording thermometer. In sizing acetate warps, it is essential that the surface temperature of the

Action of Automatic Temperature-Control



When temperature of bath rises, fluid in bulb boils, generating vapor pressure which, passing through capillary tube, CT, expands bellows. This motion, through lever, opens pressure valve, PV, on compressed-air line, which admits pressure to dome of diaphragm-motor valve, MV. This seats disk, closing steam supply. When temperature of bath falls, reverse action occurs, opening steam supply.

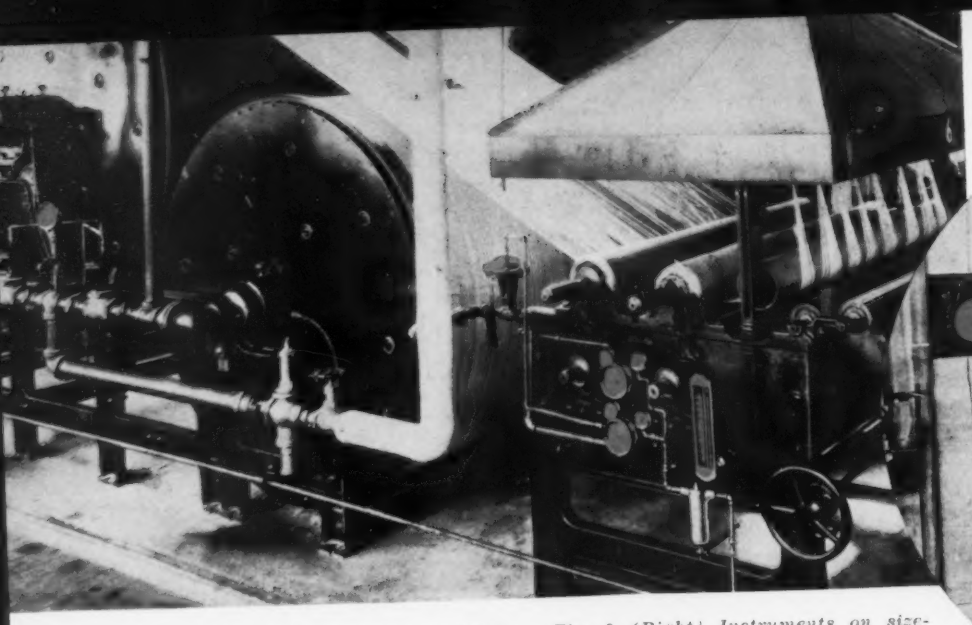


Fig. 1 (Above) Instruments maintain constant temperature and liquid level on size-box; also control dry-can temperature

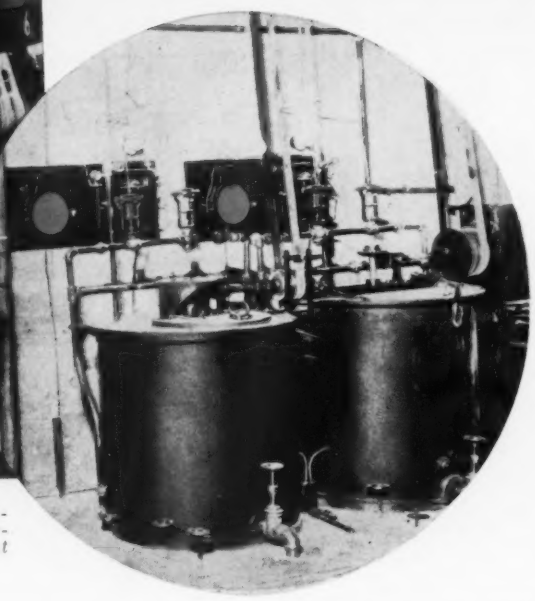


Fig. 2 (Right) Instruments on size-kettle raise temperature on predetermined schedule and maintain it at desired point

drying cylinders be kept below 180° C. in order to prevent damage to the yarn by overheating during drying. Since the temperature of steam exceeds 212° F., it is necessary in this case to employ control instruments which produce a pulsating admission of steam to the cylinders, thus permitting the formation of a mixture of steam and vapor of the desired temperature.

Wool Scouring—Scouring of raw wool is usually carried out at a temperature of about 140° F. As a scouring bowl has a large capacity and handles great quantities of wool, the cost of an automatic steam regulator is trifling compared either to the possible savings in steam or to the improvement in product. As a matter of fact, steam saving is the principal virtue of automatic temperature control in this application, preventing overheating of the scouring and rinsing baths. A secondary advantage is that it safeguards the wool from accidental high temperatures which might damage the fiber. If the equipment consists of several machines, it generally is advisable to install an automatically controlled hot-water system, rather than to attempt the individual heating of the water in each bowl.

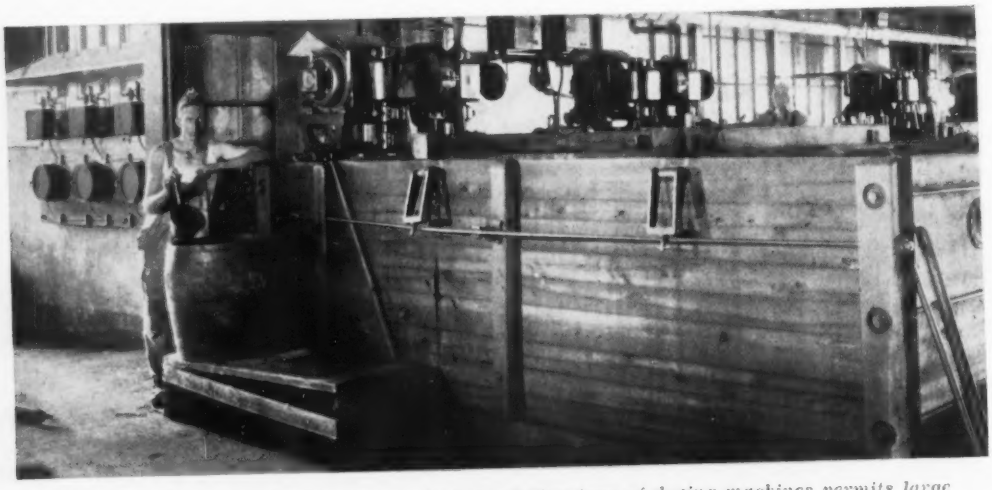


Fig. 3 Automatic temperature control of circulating-type of dyeing machines permits large savings in steam

Silk Degumming—Silk may be boiled-off in the form of skeins; woven fabrics; or knit goods, particularly hosiery. In any case, temperature control is important. The higher the temperature up to the boil the more rapid is the degumming action. On the other hand, if the bath is maintained at the boil, a large waste of steam is possible unless the operation is under strict control. Again, without temperature control, the bath may boil over, thus giving rise to loss of soap or other degumming agents. For these reasons, equipment employed for degumming piece goods and hosiery should be fitted with standard automatic steam-control devices, while an adaptation of the standard regulator can be used on the foam kettles for processing skeins.

Desizing—Desizing of cotton and rayon fabrics often is carried out with diastases of the bacterial or animal type. Each of these materials has an optimum temperature of application, below which its action is slow, and above which its power is rapidly destroyed. When a desizing solution is applied to the fabric on a padder or quetsch, automatic temperature control of the supply tank aids in uniform desizing and obviates all danger of ruining the diastase solution through overheating.

Kier Boiling—In the removal of impurities from cotton by boiling in kiers or scouring in other types of equipment, hard boiling is the usual practice, and the chief importance of temperature control is from the standpoint of saving steam. With circulating kiers of the external-heater type, for example, automatic devices are often used to advantage to regulate the temperature of the liquor after it has reached the desired peak. Large kiers of the continuous type are also logical applications for automatic control.

Scouring and Creping—Scouring and (less frequently) creping of rayon fabrics are often performed on continuous machines of one type or another. Here again, saving of steam generally is sufficient reason for use of automatic-control equipment. In the case of certain of

the acetates, which suffer hydrolysis at temperatures above 180° F., automatic control also prevents damage to the material from over-heated solutions. As in the case of wool scouring, an automatically controlled hot-water system may prove more feasible than individual heating of the water in each compartment of the continuous machine.

Mercerizing—There is considerable controversy as to the necessity for automatic temperature control in mercerizing of cotton; and until further data are available on the influence of temperature in the mercerizing process, no authoritative recommendations can be made concerning the installation of control equipment. On the contrary, in the mercerization of cotton-acetate fabrics the bath must be kept below 133° F., and automatic control of the temperature of the caustic is essential if damage to the goods is to be avoided.

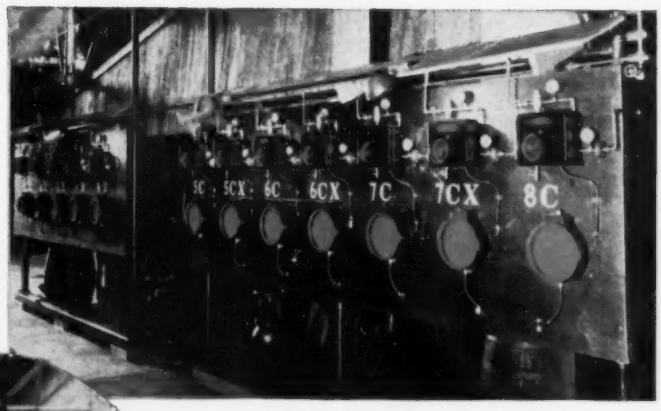


Fig. 4 Instruments control and record temperature of twelve reel dyeing machines

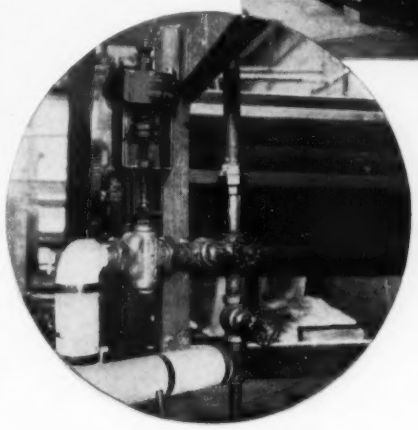


Fig. 5 Automatic temperature regulation is essential in dyeing many classes of textiles

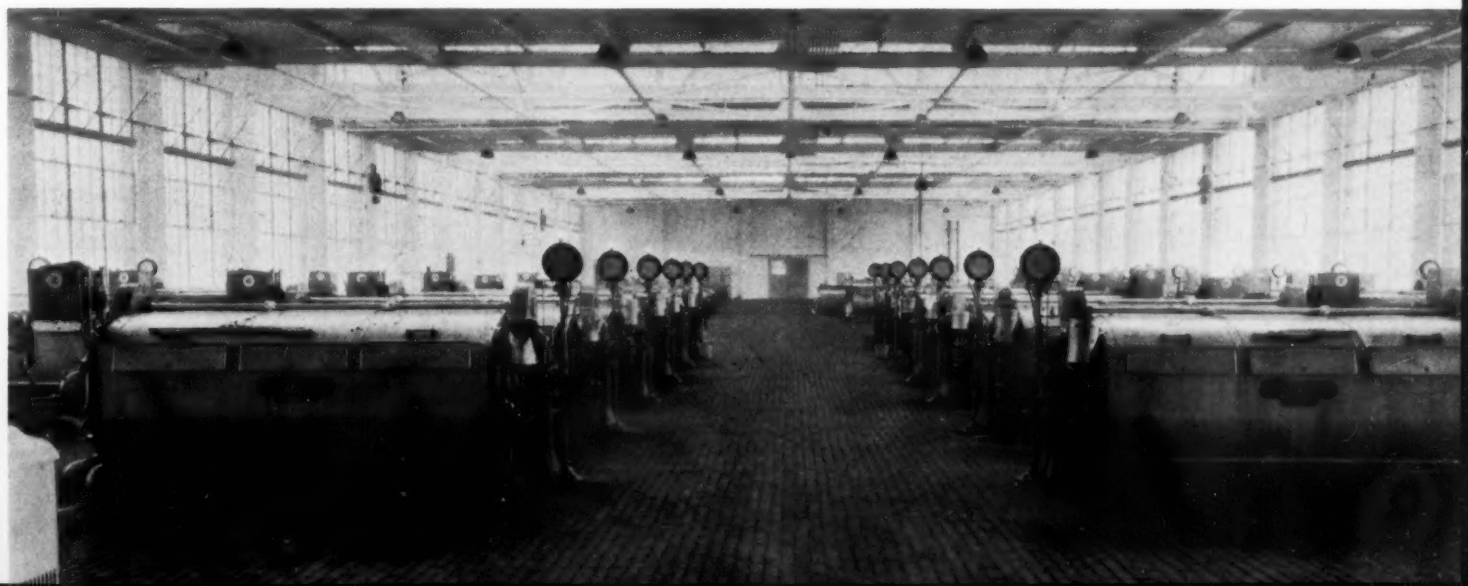
Dyeing — The dyehouse affords many examples of the advantages of temperature control, and numerous tests have been made which show the substantial savings in steam effected by automatic temperature control of various types of dyeing equipment. The circulating type of skein dyeing machines used extensively by the wool dyer is one of the outstanding applications for control instruments. It was found in one mill that yarn could be dyed satisfactorily at 203° F., a temperature considerably below the customary "dyer's boil." Installation of automatic steam regulators has resulted in steam savings running as high as 30% and has prevented boiling over of machines, with consequent waste of dyestuffs and chemicals. The reel type of machine used for dyeing woolen and worsted piece goods is another type of equipment with which similar savings can be effected. Fully as important, however, is the improvement in quality effected in many cases by the use of time-temperature controls similar to those advocated for size kettles. No blanket statement can be made concerning the advisability of automatic temperature control in dyeing cotton, silk, and rayon. In some instances where the temperatures employed are comparatively low and are not critical, automatic control is unnecessary. In other cases—such as dyeing with vat colors, aniline black, etc.; continuous dyeing where large quantities of hot water are employed; and dyeing of acetate—control instruments are of decided advantage.

Tin Weighting—Due to the corrosive action of the chemicals in the tin bath employed in silk weighting, automatic-control instruments have not been widely employed for regulating the flow of cooling water or brine used to maintain the bath at a low temperature. On the other hand, elaborate instrument installations are the rule for controlling the phosphate and silicate solutions. Uniformity of weighting depends in large part on the temperature of these baths, and in addition to control instruments, it is wise to install recording thermometers. Where a number of phosphateing and silicating machines are operated under one roof, central controlled heating systems are employed to advantage.

Continuous Washers—Continuous washers and soapers of various types are great steam users. If these are not equipped with heat reclaimers, automatic temperature control will result in large savings of steam. On the other hand, if heat reclaimers are installed, the value of temperature-control equipment as a steam saver is greatly reduced.

Printing—The continuous ager for printed goods is an ever-present reminder that all textile problems have not as yet been solved. Use of temperature-control instruments on this machine is a purely experimental application. They may aid in obtaining more uniform work;

Fig. 6 Automatic temperature control is important in boiling-off hosiery in rotary machines



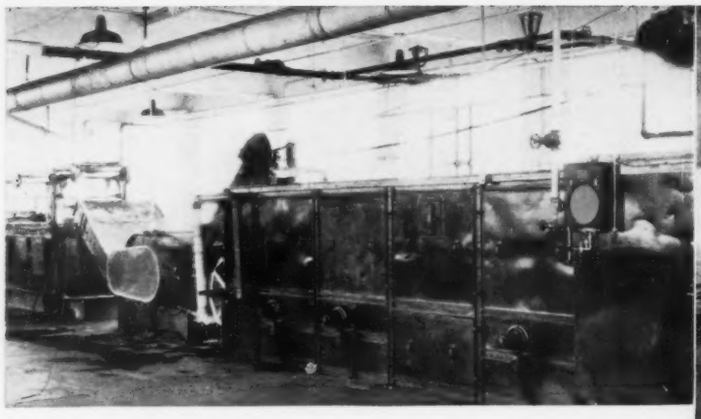


Fig. 7 Improvement in quality results from automatic control of wool-carbonizing equipment

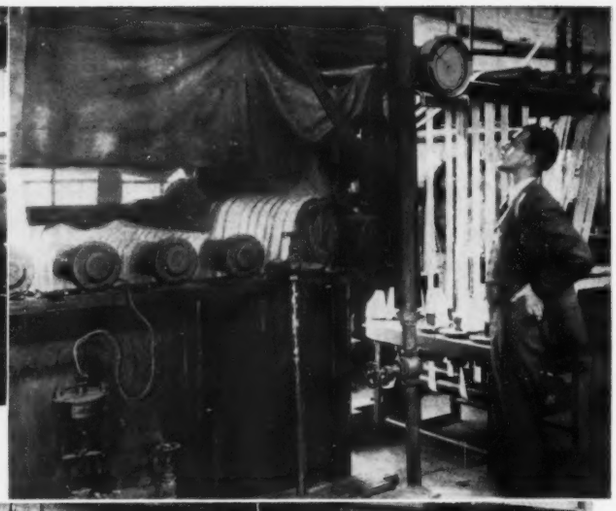


Fig. 8 Warp mercerizing machine equipped with automatic temperature control instruments

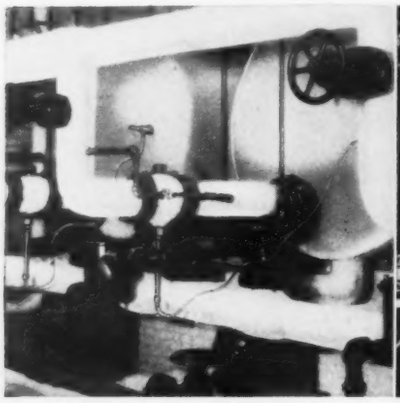


Fig. 9 Automatic control pays dividends in regulating temperature of hot-water storage tank

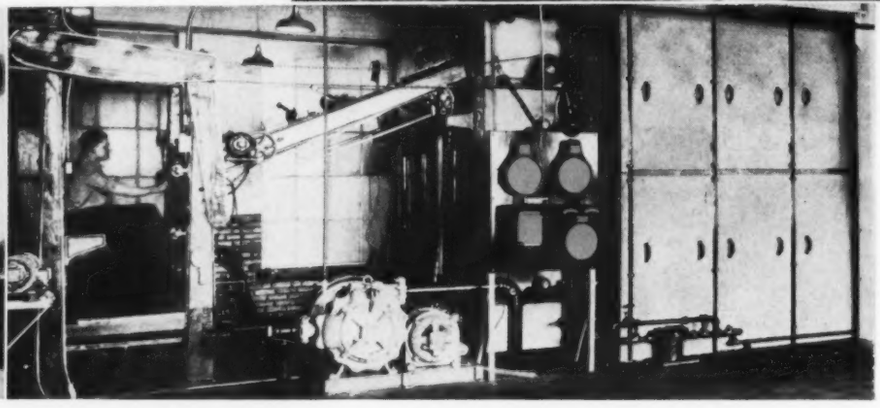


Fig. 10 Tenter dryer fitted with automatic control for both temperature and humidity

but some agers, although they are highly decorated with instruments, fail to give the expected results.

Dryers—The question of the advisability of automatic temperature control on dryers cannot be answered unconditionally. In many cases, hand control apparently is adequate. In others, where dryers can furnish higher temperatures than are suitable for the goods being dried, automatic control may be advisable. This is true also when it is desirable to dry slowly and to make it impossible for the operator to do otherwise. All dryers of the "conditioning" type, used notably for drying rayon, should be equipped for automatic control of temperature. Steam-heated tenters also lend themselves readily to automatic temperature control.

Hot-Water Systems—Control instruments are of great value in conjunction with hot-water storage systems. Automatic controls for this application are designed to perform the following functions: (1) Admit all exhaust steam available until the water has reached the desired temperature and then divert the exhaust elsewhere; and (2) admit live steam when, and only when, the exhaust steam is insufficient to maintain the desired temperature.

Fog Removal—Large quantities of steam are required to operate the fog-removal apparatus installed in many dyehouses. Up to the point of complete fog removal, addition of hot air serves only to evaporate the fog; beyond this point further addition of hot air causes the temperature of the dyehouse to rise, which is both undesirable and wasteful. From the angle of steam saving, possibly no other textile application pays such big dividends as automatic temperature control of the fog-removal system. In several other departments—such as card rooms, spinning rooms, and weave sheds—automatic temperature control (with or without humidity control) is of particular importance from the standpoint of uniformity of product.

Other Applications—In addition to the applications already considered, there are many other textile processes in which automatic temperature-control equipment has a legitimate use, although the advantages are not so marked. A typical example is the crabbing machine. While most finishers content themselves with equipping the crabbing machine with simple indicating thermometers, automatic control of the crabbing temperature is desirable both from the standpoint of steam saving and uniformity of the process. A few of the other types of equipment on which automatic control instruments are often installed include dolly washers, hosiery dryers, conditioning machines, backwashers, bleaching equipment, and various finishing machines.

A recent survey indicates that in the textile industry there are at least 65 operations in which temperature control is a factor. In a number of these processes, however, hand control of the temperature and use of indicating or recording thermometers give reasonably good results, and installation of automatic-control instruments is not warranted. On the other hand, in any operation in which large amounts of steam are consumed or in which temperature is a critical or important factor from the standpoint of quality or uniformity of product, automatic control has advantages which no mill man can afford to ignore.

ADVERTISING PAGES REMOVED

Textile World Analyst

RECESSION PASSES FROM TREND TO ACTUALITY STAGE

LAST month we talked about a "trend toward recession." This month it is necessary to talk about recession as an actuality. Practically all branches of the textile industry have felt the reactionary movement. As May closed, threats of serious labor trouble further clouded the situation.

Mill activity statistics are available through April only. Naturally, these do not reflect the full effect of the letup. April activity, based on total consumption of raw materials, was 7% below the previous month. However, it was 7% above April of last year; in fact, the total for the first four months of 1934 was approximately 10% above the corresponding period of 1933; compared with this period of what we estimate as a "normal" year, it was 9% below.

The general price decline, which first showed up in TEXTILE WORLD'S price index numbers for April, continued during May and all indices dropped. In the cotton group, it was notable that while raw cotton receded only 3 points, yarns and gray cloth dropped 8 and 9 points.

Wool prices continued to drift lower, the raw wool index showing a drop of 7 points, primarily due to considerably lower values on fleece wools, while tops and yarn sagged 10 points each. Raw silk, at 27, is close to its all-time low of 26 set, in February, 1933.

Profit possibilities in carded cotton fabrics and yarns have continued to decline, as shown in Tables I and II respectively. The average fabric margin for May was 15.8c., against 17.6c. in April. The May yarn margin was 14.3c. against 15.9c. in April. The latter was a nominal figure; lack of activity in the market resulted in a static price position so that the only changes in manufacturing margins from week to week were those produced by fluctuations in the raw material.

The data presented by the Cotton Textile Code Authority in support of its request for endorsement of a curtailment program gave forceful evidence of the slump in that branch of the industry. Cloth stocks increased from 250,330,000 yd. on Feb. 24 to 332,362,000 yd. on April 28; unfilled orders, during the same period, decreased from 1,138,384,000 yd. to 756,037,000 yd.; sales during the last two weeks of April were only 47% of production. In carded yarns, average weekly sales for the eight weeks ending April 21 were about 4,560,000 lb. as compared with a potential production of 10,000,000 lb. a week; stocks were approaching the peak levels of last December and January. During the three weeks ending April 21, sales of combed yarns had dropped to an average of about 37% of the average weekly production.

It was further stated that sales of rayon fabrics had been below production every week, with the exception of one week in April, since Feb. 17. Average weekly sales during this 11-week period amounted to only 70% of production. Unfilled orders declined from 774,684 pieces on Feb. 17 to 461,745 pieces on May 5, a decrease of 40%. During the same period stocks of rayon fabrics increased 46%.

The situation in the woolen and worsted field is too well known to need comment. Suffice it to say that wool consumption in April was the lowest in 12 months.

In the silk industry, data released by the Silk Textile Code Authority showed that, during the first two weeks of May, there had been a recession of 10% in the market as compared with the last two weeks of April.

In view of all these facts, it is safe to say that the textile markets have felt a very definite slump.

What of the future?

There is nothing in the picture to change our previously-expressed conviction that there will be a sharp pick-up in business generally in the late summer or early fall. In view of the fact that the textile reaction preceded the recession in general business, it is possible that textiles will resume activity earlier than will other fields. Some observers look for a mid-summer spurt. That, we think, is anybody's guess; we believe one should be content with the prediction that the last quarter of the year will mark a general resumption of the upward movement.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	July, 1933.....	23.4
October, 1931..	13.3	August, 1933...	21.4
January, 1932..	12.1	September, 1933	19.5
June, 1932.....	9.5	October, 1933...	19.1
July, 1932.....	9.1	November, 1933	17.7
August, 1932..	11.1	December, 1933	17.6
September, 1932	13.0	January, 1934..	18.4
October, 1932..	12.6	February, 1934.	19.1
November, 1932	10.7	March, 1934...	18.3
December, 1932	10.6	April, 1934.....	17.6
January, 1933..	10.4	May, 1934.....	15.8
February, 1933.	10.1	May 9.....	16.3
March, 1933...	10.2	May 16.....	15.7
April, 1933.....	11.4	May 23.....	15.6
May, 1933.....	15.6	May 29.....	15.5
June, 1933.....	20.6		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	July, 1933.....	23.2
October, 1931..	12.7	August, 1933...	23.5
January, 1932..	10.9	September, 1933	21.3
June, 1932.....	9.9	October, 1933...	20.0
July, 1932.....	9.6	November, 1933	18.4
August, 1932...	9.7	December, 1933	18.5
September, 1932	12.8	January, 1934..	18.3
October, 1932..	12.3	February, 1934	16.5
November, 1932	11.3	March, 1934...	16.8
December, 1932	10.9	April, 1934.....	15.9
January, 1933..	10.2	May, 1934.....	14.3
February, 1933.	9.4	May 9.....	14.4
March, 1933....	9.8	May 16.....	14.3
April, 1933.....	10.1	May 23.....	14.4
May, 1933.....	12.3	May 29.....	14.2
June, 1933.....	15.4		

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Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925, average..	187	188	189	176	223	229	224	233	143
1926, " ..	140	155	157	149	184	189	179	207	136
1927, " ..	140	153	159	153	181	184	187	195	119
1928, " ..	160	162	162	166	199	202	199	197	110
1929, " ..	153	144	145	167	176	179	192	211	108
1930, " ..	108	125	123	144	127	139	161	202	179
1931, " ..	68	93	92	119	99	112	134	161	54
1932, " ..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933.....	111	156	149	147	144	177	165	222	41
Oct. 1933.....	110	152	141	144	148	179	175	222	36
Nov. 1933.....	114	146	132	144	150	179	175	222	33
Dec. 1933.....	115	146	131	144	152	179	177	222	32
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30
May 1934.....	125	136	132	140	140	166	170	209	26

Note: All cotton indices since Aug. 1 include processing tax.

THIS DEPARTMENT

Offers every other month a collection of practical suggestions for meeting many of the miscellaneous problems which arise in textile mill operation. Readers are cordially invited to contribute, and published kinks will be paid for without regard to length. Brevity is desirable. Additional payment will be made for diagrams or photographs.

Kinks and

▼

An Unseemly Seam

I was consulted regarding a clumsy seam in full-fashioned hosiery. A very heavy heel-splicing caused the selvage, at the beginning of the spliced part, to project beyond the selvage of the leg. The seamers were made to stop at the heel and to endeavor to hold the selvage down by stretching it, but the results were even worse, due to the reaction after stretching. I saw the difficulty and had the splicing-stop set in on the selvage side, so that the heavy yarn stayed back two needles from the selvage. The seamer just caught the edge of the heavy splicing, in addition to the regular seam, and the trouble was eliminated. ALBERT GEE.

Creases in Rayon Crepes

In finishing the popular rayon crepe fabrics by immersion in a boiling soap liquor, it is necessary to keep the fabric in open width at the time of its immersion. If the fabric is in any way creased, these creases are permanently "set" and cannot be removed by the dyeing and finishing processes which follow. Permanent creases also result from any creases which turn up during, or immediately after, weaving. A useful preparatory treatment, to prevent the formation of permanent creases, is to run the gray fabric over the usual drying cylinders before it is entered to the creping bath. This operation removes all weaving creases, and the extra labor is amply compensated for by the diminished risk. F. W. BERWICK.

The Gentleman Disagrees

There is an item on a cotton plush weave in "Kinks and Wrinkles," TEXTILE WORLD, April, 1934, with which I do not fully agree. I agree with the first part of the article, but I think that the second part, in which he states that it is necessary to weave 12 in. of the cloth and then start making changes in the draw, is impractical and unnecessarily expensive. It also gives anyone not familiar with plush weaving a wrong impression.

Anyone experienced in plush and velvet weaving, and knowing the principles of pile weaving, should be able to figure out if the draw is right for the cam setting without weaving 12 in. and then having all the extra work because of one half of the pile rolling.

I have found the different articles that you have published from time to time very interesting and I have enjoyed reading them.

ARTHUR HUDSON.

A Double-Life Gear

One of our section men made the suggestion that, instead of cutting teeth on the cylinder-gear in the usual way and having the rest of the blank turned

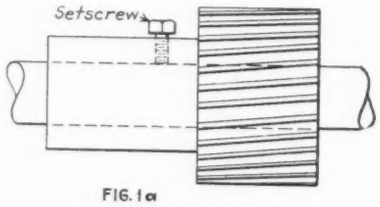


FIG. 1a

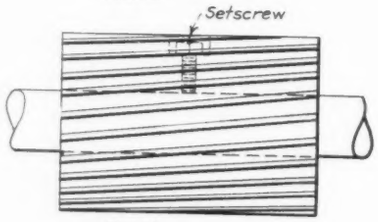


FIG. 1b

down and finished, we try cutting teeth the entire length of the blank and have the set-screw hole bored through the teeth at the usual place. In this way we had a replacement gear when the one in use wore out. The cost of making gears this way was but little more than making them as had formerly been done and, until both ends of the gear had been used, we were assured of one being on hand for a quick change.

Fig. 1*a* shows the gears as formerly made; and Fig. 1*b*, as now made with teeth cut the length of the blank. The gear is turned end-for-end when one side is worn out. H. W. SWAN.

Spirality in Knit Fabric

The wales in knitted fabrics frequently show a pronounced bias or twill, rather than a vertically lined effect. The cause of this "spirality" has recently been investigated by W. Davis and C. H. Edwards, of University College, Nottingham, England, in cooperation with G. R. Stanbury, of the British Wool Industries Research Association. These gentlemen report the following results in the *Journal of the Textile Institute:*

"Spirality is caused mainly by twist in the yarn. It increases uniformly with this twist and takes the same direction. The effect is generally higher for crossbred yarns than for botany yarns of the same characteristics. The defect can be corrected only temporarily by treatment of the fabric in the steam press. It can be almost completely prevented by previous setting of the yarn. Water-setting is rather more effective than steam-setting. Where two ends of yarn are to be used, spirality will not be evident if the single yarns have equal and opposite twists. Suitably balanced two-ply yarns can be constructed to give fabric free from spirality."

Polishing Mixture

The following mixture has been found most satisfactory for polishing machinery, particularly in the card room:

5 lb. whiting.
1 pt. kerosene.
½ lb. powdered pumice-stone.
2 oz. camphor gum.
1 pt. heavy machine oil.
1 lb. stearic acid.

This makes about 10 lb. at a cost of around $1.

First melt the stearic acid in a double boiler and then add the camphor. When the camphor is melted add the oil, kerosene, and whiting in that order. Mix thoroughly with a paddle, or, to make the job easier, place a paddle attachment on an electric drill. O. N. C.

Narrowing Trouble Eliminated

Some time ago we installed a new full-fashioned footer near the windows of a building having a southern exposure. It was in the winter season, and the machine ran satisfactorily for several weeks, and then it developed narrowing trouble. The same trouble would re-

Wrinkles

NEXT MONTH—

The "Overseers Round-Table" will appear in this space with a new discussion and with readers' comments on the question of best method of handling learners, which was opened for discussion in the May, 1934 issue. "Kinks and Wrinkles" and the Round-Table will continue in alternate months.

appear every day. We had several expert erectors check up on all the narrowing mechanism and make accurate adjustments, but failed to correct the trouble for more than a day at a time. We finally had a man sent from the factory to make a study of the problem. After three or four days he discovered that the trouble started every afternoon at about the same time. He then noticed a sun ray on the narrowing rod; and feeling of the rod at the joint, he found it was warm. The heat from the sun ray expanded the narrowing rod sufficiently to throw the narrowing fingers out of adjustment. A piece of cardboard was placed in the transom through which the sun ray was coming, and this ended the trouble.

Removing Tar Spots

Tar spots and similar stains may be removed from woolen goods in the following manner:

1. Take about a pint of pure lard oil and add a few ounces of any of the active solvents used in finishing departments.
2. Place the tar-spotted pieces over a burling table and provide the operatives with small pads or "dabbers" of clean headends.
3. Give each spot a dab with the liquid and allow to stand for about an hour.
4. Run the goods through a washer and give a good soaping, using plenty of hot water and adding a quart of ammonia to the bath.

GEORGE R. STEVENS.

Using a Mule As A Winder

Sometimes, through an accidental breakdown of the filling winders, a number of looms may be waiting for yarn. However, by changing over a mule it can readily be used as a winder.

The following instructions apply to the Johnson & Bassett mule:

To reduce the speed of the cylinder without changing any pulleys, first, lock the camshaft when the twist has dropped and the backing-off clutch is engaged; and, second, remove the pawl, backing-off chain, and spring from the inside of the carriage. This runs the belt on the narrow pulley and, the backing-off friction being engaged, runs the cylinder slowly.

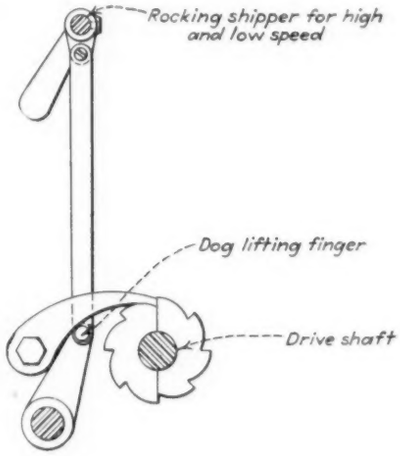
The distance you block the carriage from the rolls depends on the builder you use. Nearly any make of builder can be attached to the upper part of the faller leg and bolted to the floor. The builder can be driven from the drawing-in scroll-shaft by removing the left-hand scroll (the scroll with clutch attached) and putting on a pulley or eccentric. The drawing-in ropes must be removed and the shaft locked.

J. M. MASSON, SR.

Anti-Rattling Device

It is necessary to prevent many kinds of textile machines from running backwards to avoid doffing of the fabric or injury to the machines.

Some of our two-speed machines were not provided with a suitable back-



dog, or retaining-pawl, mechanism and the simple anti-rattling device shown herewith was found easy to make and highly efficient.

It will be obvious that this construction will be equally effective on single-speed machines.

WALTER A. SIMOND.

Shuttle Won't Behave

An experienced foreman spent practically a whole afternoon working on a new loom to keep it from throwing the shuttle out. He worked over the shuttle boxes, pickers, lug straps, and everything else that ordinarily causes the trouble. All adjustments seemed perfect, but still the loom continued to throw the shuttle out. Finally, he walked over to another experienced man and admitted that he was stumped.

"I had a similar case not long ago," the man replied, "and I finally found that the dowel pins had been left out of one rocker-shaft box, allowing one side of the lay to be lower than the other. When the rocker-shaft box was adjusted so that the lay was level, the trouble was eliminated."

On some looms, rocker-shaft boxes are not doweled to the loom sides, and occasionally I have found that the bolts which hold them in place become loose. This allows one side of the lay to sag, causing trouble similar to that described above.

H. (N. C.)

Modern Application of An Old Kink

In the earliest days of cotton spinning, the short fibers would stick to the bobbins, making it necessary to stop and clear. The father of Robert Peel (afterwards Prime Minister of England) noticed that one of his spinners drew full pay, as his machines never stopped.

"How is this, Dick?" Mr. Peel asked. "The overlooker tells me that your bobbins are always clean."

"Why you see, Mr. Peel." Dick Ferguson answered, "it's sorto' a secret. If I told you, you'd be as wise as I am."

After some dickering, Mr. Peel asked Dick what he would take for his secret. Dick replied:

"Give me a quart of ale every day as I'm in the mill and I'll tell thee all about it."

Mr. Peel agreed (Dick was paid with money as it turned out) and listened.

"Chalk your bobbins," Dick whispered.

French chalk is an excellent aid in preventing carrier laps in worsted spinning, and with some wools it is almost impossible to work without it. Recently I saw an arrangement which was even better than the application of French chalk; the overseer wrapped the carriers with paper, leaving a loose flap to flick off the first fibers forming a new lap.

GEORGE HENDRICKS.

THE PERSONAL PAGE

Dr. Claudius T. Murchison, nominated by President Roosevelt for the directorship of the Bureau of Foreign and Domestic Commerce, was born at Hickory, N. C., April 17, 1889. He lectured in economics at Columbia University during 1915-16, was associate professor of economics at Miami University, 1916-18, at Hunter College, 1918-20, and at New York University, 1920-21. In 1921-22 he served as associate professor of economics in the University of North Carolina and as professor of applied economics since 1922. He is the author of two publications dealing with prices and the cotton situation, published in 1919 and 1930, respectively.

James F. Hallinan, vice-president in charge of new business for Commercial Factors Corp., has been elected vice-president to succeed **Johnfritz Achelis,** recently elevated to the presidency. **Ray Biegler** succeeds Mr. Hallinan as new business manager.

J. D. Goodpasture, president of the Se-Ling Hosiery Mill, Nashville, Tenn., has resigned.

James W. Cox, Jr., has become associated with the Iselin-Jefferson Co., New York, in an executive capacity. Until recently Mr. Cox was president of Sibley Mfg. Co. and Enterprise Mfg. Co., Augusta, Ga. For 11 years previously he was head of the firm of Cox & Fuller, textile consultants. **Floyd W. Jefferson,** of the Iselin-Jefferson Co., states that the addition of Mr. Cox to the organization makes it possible for the agency to offer to the mills an unusual service of broader scope. Mr. Cox will be available to study the equipment of mills in relation to their adaptability to specific types of fabrics.

W. N. Campbell has resigned as president of the Goodall Co., clothing-manufacturing unit of the Goodall Worsted Co., and has been succeeded by **Elmer Ward,** who also retains his position as general manager. Mr. Campbell remains as president of Goodall Worsted Co.

Frederick C. Niederhauser has resigned his position as vice-president in charge of operations of the Tubize-Chatillon Corp. He had been with the company in a mangerial capacity since 1931.

E. Kent Mitchell has resigned as merchandise manager of Cheney Bros. to become associated with Cornell & Caton, Inc., marketing consultants, New York.

Wm. Harry Entwistle, vice-president and general manager of the Entwistle Mfg. Co., Rockingham, N. C., has been selected as an industrial adviser on the staff of the Industrial Advisory Board of the National Recovery Administration, and has gone to Washington, D. C., for about two months.

Franklin W. Hobbs, president of the Arlington Mills, has been reappointed by President Roosevelt to the board of the Textile Foundation for a period of four years from June 11. Mr. Hobbs has served as chairman of the board since its formation in 1930.

John S. Dunn retired as president of Dunn-Wetzell Co., Philadelphia, Pa., cotton yarn selling organization, effective May 1, and has announced plans for organizing a similar business under his own name about Sept. 1.

Lester A. Miller has been appointed general manager of the Musgrove Knitting Co., Pittsfield, Mass., to succeed his father, the late **Perry E. Miller.**

Charles E. Buckley, formerly manufacturing agent of the Gosnold Mills, New Bedford, has been made superintendent of the Reading (Pa.) Cotton Mills (Joseph Bancroft & Sons Co. of Pa.)

Henry P. McKenney, of Henry P. McKenney & Co., Inc., New York, has retired from active business. The firm will be succeeded by Dougherty & Co., Inc.

Irene L. Blunt, secretary of the National Federation of Textiles, Inc., and of the Silk Textile Code Authority, has been elected president of the Trade Association Executives of New York City.

Ornulf E. Heiberg has resigned his position as superintendent of the Imhoff-Berg Silk Dyeing Co., Paterson, N. J., to take charge of the technical department of Nydalene Campagnie, Oslo, Norway.

W. L. Lowery has become superintendent of the Lancaster, S. C., unit of the Springs Cotton Mills.

H. B. Ludlum, Jr., has resigned his connection with the NRA in Washington and has returned to his former duties with Dun & Bradstreet, Inc., N. Y.

T. W. Bost, superintendent of the Belton (Tex.) Yarn Mills, has resigned. He will be succeeded by **J. E. Norket,** formerly superintendent of Eastern Mfg. Co., Selma, N. C.

L. E. Hopper, formerly superintendent of the Pelzer (S. C.) Mfg. Co., weaving division, has resigned to become superintendent of the Balfour (N. C.) Mills, weaving division. He will also act as assistant plant superintendent. He has been succeeded by **H. L. Pruitt.**

Clarence A. Weiler has been elected president of the Textile Designers Guild, succeeding **Robert Schey.**

Wilson McCarver is now superintendent of the two plants of the Hampton Spinning Mills, Clover, S. C., succeeding **John W. Long,** who resigned to become associated with the Goldberg Mills, Gaston County, N. C.

F. E. Meredith has been elected a director of Canadian Cottons Ltd., to succeed the late **F. L. Beique.**

A. V. Young, president of Hamilton Cotton Co., was elected president of the Cotton Institute of Canada at its annual meeting in Montreal early in May.

David A. Sykes, for 48 years connected with the Hockanum Mills Co. and its predecessors, in capacities from superintendent to vice-president, is retiring following purchase of company by M. T. Stevens & Sons Co. He was tendered a dinner June 4 in Hartford, Conn., by representatives of the wool and waste trades.

Thomas J. Munday has resigned from the sales organization of the Cyril Johnson Woolen Co., New York. He was formerly selling agent for Crown and Chester Moses Mills.

Albert C. Woodruff, Jr., formerly with Palmer Bros. Co., has become associated with the selling staff of the Eddystone Division, Joseph Bancroft & Sons Co.

Dean Hill, who has been executive secretary of the Throwsters Research Institute since that organization was founded several years ago, announced on May 24 that he had resigned to take the post of executive director of the Mercerizers Association of America. The change became effective June 1. Mr. Hill also resigned his auxiliary post as secretary of the committee administrating the throwing industry code. The Mercerizers Association at present is located in Washington, D. C.

Richard W. Rawlinson, research engineer, Nashua Mfg. Co., Lowell, Mass., and a former assistant editor of TEXTILE WORLD, was married on June 2 to Miss Elizabeth P. White, daughter of Royal P. White, agent of Stirling Mills, Lowell, Mass.

D. F. Poole is now superintendent of the Dadeville, Ala., plant of the Alabama Mills Co. He was formerly with the Opelika, Ala., plant of the Pepperell Mfg. Co.

W. H. Darby has been appointed superintendent of the carding and spinning division, No. 3 unit, of the Alfred Mills, Granite Falls, N. C.

J. A. Duncan has become supervisor of the yarn testing division, Aberfoyle Mfg. Co., Belmont, N. C.

C. H. Ross is now general superintendent of the jacquard weaving division of the Burlington (N. C.) Mills Co. He was formerly associated with the Ranlo (N. C.) Mfg. Co.

J. H. Bagwell, formerly of the Sibley Mills, Augusta, Ga., is now superintendent of the weaving department of the Cotton Mills Products Co., Mobile, Ala.

A. S. Griffith, general superintendent of spinning, twisting and winding at the Cherry Cotton Mills, Florence, Ala., has resigned and has been succeeded by **Naile Hendon.**

H. T. Gilbert has become superintendent of the carding division of the Lindale, La., plant of Pepperell Mfg. Co.

Tom O'Shields has resigned as superintendent of the weaving division of the Hannah-Pickett Mills, Rockingham, N. C., and has been succeeded by **B. W. Outlaw.**

H. E. Benson, formerly with Piedmont Plush Co., is now associated with Sidney Blumenthal & Co., Inc., in the drapery division.

J. H. Haddock, formerly with Erwin Cotton Mills Co., Durham, N. C., is now superintendent of Waxahachie (Tex.) Cotton Mills Co.

J. L. Brannon has been promoted to general superintendent of Eagle & Phenix Mills, Columbus, Ga., succeeding **W. R. Tattersall,** resigned.

W. G. Hardy has been appointed superintendent of Aponaug Mfg. Co., Kosciusko, Miss., succeeding **Preston Newell,** resigned.

D. S. Ball has been appointed superintendent of the Monroe (N. C.) Mills Co., succeeding **J. Wilson McCarver,** resigned.

E. S. Dunlap, head dyer for the Waynesboro (Pa.) Knitting Co., had the degree of Chemical Engineer conferred upon him by Bucknell University at the annual commencement on June 11.

F. W. Easter has resigned his position as superintendent of the High Point (N. C.) Silk Mill of the Carolina Cotton and Woolen Mills Co.

Obituary

John Nash McCullaugh, aged 43, former managing director of the National Association of Hosiery Manufacturers and former general manager of the Berkshire Knitting Mills, was found dead, June 7, in the garage at his summer home in South Norwalk, Conn. He was born in Boston in 1891. His early business connection was with Miller, Franklin, Bassett & Co., industrial engineers.

Herman A. Metz, aged 66, of H. A. Metz & Co., dyestuffs, died in the New Rochelle, N. Y., hospital, on May 17. Mr. Metz was a former Comptroller of the City of New York, a member of the House of Representatives from 1913 to 1915 and a brigadier general in the U. S. Army Reserve Quartermaster Corps.

H. A. V. Parker, aged 62, president of the Parker Hosiery Mills & Dye Works, Portsmouth, Va., died recently.

Warner J. Steel, aged 65, head of the Thornbury Worsted Mills, Bristol, Pa., died at his home in Philadelphia on May 22.

Eilert A. Clements, aged 69, founder of the Globe Knitting Works, Grand Rapids, Mich., died May 12.

John Moore, aged 62, founder of the B. C. Worsted Mills, Victoria, B. C., died on April 25 in Bradford, England.

William D. Briggs, aged 52, president of the Caraleigh Cotton Mills, Raleigh, N. C., until it discontinued business, died at his home there May 2.

John Howarth, retired superintendent of the Wanskuck Mills, Providence, R. I., died in Woonsocket, R. I., May 10.

G. D. Barlow, aged 66, former superintendent of the Dillon (S. C.) Cotton Mills and the Marlboro Mills at McColl, died at Dillon on May 26.

E. A. Tracy, aged 83, and head of the Tracy Mills, South Coventry, Conn., from 1878 to 1910, died recently at Southern Pines, N. C.

Henry I. Steele, aged 59, president of Adel Yarn Mills, Stoney Point, N. C., died at the Davis hospital in Statesville, N. C., May 29, following a long illness.

W. F. Davis, superintendent, Brandon Mill, Brandon Corp., Greenville, S. C., died last month following a heart attack.

Arthur B. Emmons, aged 80, treasurer of Emmons Loom Harness Co., Lawrence, Mass., founded by his father in 1867, died recently in Lawrence.

Rudolph E. Illi, who retired as superintendent of Waterman Worsted Co., Putnam, Conn., in 1929, after service with Hockanum and French River, died recently in Florida where he made his home.

Henry R. Van Saun, aged 60, died in Cranford, N. J., May 31. He had been on the sales end of the blanket business for 46 years, associated for many years with St. Mary's Woolen Mfg. Co. He was partner in F. H. Cabot & Co., and lately president of W. S. Libbey Co.

Frank B. Hopewell, aged 60, treasurer of Sanford (Me.) Mills and for many years connected with L. C. Chase Co., died suddenly June 1.

J. Rush Oates, aged 75, formerly superintendent of Belmont (N. C.) Cotton Mills, died recently at his home in Asheville, N. C.

Recommends Fabric Labeling

Informative labeling on all fabrics, a practice urged in the interest of the buying public by the N.R.A. Consumers Advisory Board, finds support in a letter recently addressed to the Board by the Better Fabrics Testing Bureau. This agency of the National Retail Drygoods Association makes the following specific recommendations:

That all textile manufacturers' codes be amended to require specific marking on the selvage of all woven cloth, the fiber composition and in addition state within practical tolerances any and all weighting material content and give its identity. Also, in the case of knit cloth, the wrapper or other attachment bear the information as required above for woven goods.

That all garment manufacturers' codes be amended to require producers to label or tag each unit of manufactured product with the information found on the selvage or other identifying marks on the cloth.

That the retail code be amended to require the merchant to show the tag or label on the article at the time of sale to the ultimate consumer.

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Seminar on "Battle of the Fibers"

The trend toward intensified competition between the textile fibers was analyzed from various aspects at a seminar on "The Battle of the Fibers" held May 21, at the Waldorf-Astoria Hotel, New York, under auspices of the International Statistical Bureau, Inc., of New York. A. W. Zelomek, economist, in the chief address, cited among numerous results of the fiber competition, the need for increased flexibility in fabric and apparel manufacture. He said that the development may force manufacturers to set up machinery so that they can change from one fabric to another without much difficulty. Rayon's position in the picture was examined by Wil Greene, another speaker, who urged increased production of fine denier yarn rather than increased competition with low-priced silk through price-cutting.

Textile Calendar

Cotton Mfrs. Assn. of South Carolina, annual meeting, Spartanburg, S. C., June 26, 1934.

Committee D-13 American Society for Testing Materials. Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 28, 1934.

Southern Textile Association, Annual Meeting, Ocean Forest Hotel, Myrtle Beach, S. C., June 29-30, 1934.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

American Society of Mechanical Engineers, Textile Division, meeting with Greenville Section, Greenville, S. C., Oct. 15, 1934.

Federated Textile Industries, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

Lowell Alumni Elect

H. F. Finlay, '10, National Aniline & Chemical Co., Boston, was elected president of the Lowell Textile Institute Alumni Association, at the annual reunion in Lowell, Mass., on May 19. Other new officers are H. W. Martin, '11, Hood Rubber Co., Watertown, Mass., vice-president; and Prof. A. A. Stewart, '00, Lowell Textile Institute, secretary-treasurer. The reunion featured technical sessions under chairmanship of C. H. Forsaith, '20, Jackson Mills, Nashua, N. H.

At the regular spring meeting of the Lowell Textile Institute Alumni, New York Chapter, held last month, the following officers were elected: president, L. S. Zisman, chief chemist, Gotham Silk Hosiery Co.; vice president, C. C. Jessop, Louis Levy & Co.; and secretary-treasurer, G. J. Bienstock, Yorkshire Worsted Mills.

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Industrial Relations Conference

About 100 delegates will be selected as representatives of operatives in textile manufacturing plants throughout the South for an institute to be held at Blue Ridge, Va., for ten days, beginning July 7 and closing with the Southern Conference on Industrial Relations. Invitations will be issued to mills throughout the South.

QUESTIONS AND ANSWERS

Novelty Worsted Yarns

Technical Editor:
In the August, 1933, issue of TEXTILE WORLD, there is an article on novelty yarns on cotton machines. Would it not be possible to produce the himalaya yarn on a Bradford cap spinning frame for worsted yarn in the same manner as the article describes for the cotton machines? How many teeth are in each elliptical gear? What other novelty yarns are produced on the Bradford cap spinning frame, or on the Bradford system for worsted yarns? (8117)

It is possible to produce the himalaya yarn on any type of worsted spinning frame using the same methods described in the article mentioned. To maintain evenness in the yarn, the maximum draft in the range should be limited to that which the quality will stand. Then, as the draft is reduced, there will be no question about the evenness of the yarn throughout the elliptic cycle.

The number of teeth in both elliptic gears must be alike. The actual number of teeth will depend upon two factors, the pitch and the variation desired in the draft. The actual design of the elliptic gear will govern the actual taper produced in the himalaya yarn. We recommend that you have a few pairs of blanks bored for various degrees of eccentricity. These blanks can then be cut to the pitch desired, carefully timed, and marked.

A very rude himalaya yarn can be produced by the use of gap gears. Such gears are draft gears mutilated by the removal of teeth according to the effect desired. Using this method, however, may not produce the desired taper.

The first novelty yarns were actually made on a spinning frame. The writer remembers seeing many types made in the Thomas Ashton cotton mill, in Hyde, Cheshire, England, over 30 years ago.

The production of a desired novelty yarn may require effects which are dependent upon the method of processing. One end of a special color inserted at the Noble comb will produce an effect in the finished yarn which cannot be imitated by any other procedure. Extraordinary methods followed in blending in the drawing will produce effects of color in the yarn that baffle reproduction by those ignorant of the actual system of blending followed. Himalaya yarns represent another type which is dependent upon spinning procedure.

Many novelty yarns are dependent upon special processing after the single yarn has been produced in a regular manner. Such yarns may require one or more of the following conditions: (1) single yarns of different counts; (2) single yarns with different turns per inch; (3) single yarns twisted in opposite directions; (4) intermittent delivery of one or all ends, forming the twist, with positive control of each end; (5) a different rate of delivery for each end; and (6) uneven distribution of one end as it is twisted around a base or foundation end.

The spinner can easily produce the yarns required for 1, 2, and 3. To obtain the required effects for 4, 5, and 6, various changes will have to be made, such as the following:

1. *Intermittent delivery:*

a. Take out the top front rolls and all but one line of carriers.

b. Use heavy iron tumblers 2 in. in diameter. Each tumbler must have a groove which allows the passage of the end from the back roll without affecting its delivery.

c. The gearing must be changed to obtain the required speeds of the back roll and the carrier roll, which are now used as delivery rolls. Change the relative positions of the draft and back-roll gears. The draft gear will now be on the end of the back roll, and it may be used as a change gear. A positive control of the carrier drive is necessary with a change gear in the train.

d. Gap gears must be used to obtain the intermittent delivery. A gap draft gear or a gap twist gear will be used to obtain a regular variation in twist, sometimes called "cloud" twist. A gap change gear may be used on the carrier drive.

2. *A different rate of delivery for each end:*

Use the change gear mentioned previously for the back roll and for the carrier drives.

3. *Uneven distribution:*

One or two vibrator rods or bars working in front of and below the front roll will be necessary, and special mechanism will be required to oscillate the bars.

A spinning frame equipped in the manner outlined can produce a large variety of novelty yarns, such as the corkscrew, the spiral, the gimp, the loop or curl, the diamond, and the slub, flake, or cloud.

Corkscrew yarn can be made by twisting together (a) yarns of different counts, (b) yarns delivered at different rates of speed, or (c) right- and left-twist yarns each containing the desired turns per inch.

For spiral and gimp yarns use the method outlined in *c* immediately above for corkscrew yarns. Gimp yarns, however, are finally retwisted in the opposite direction with a fine binder thread.

For loop or curl yarn a fine end is used as a core or ground thread and a coarse end is used to produce the loop. The coarse end is delivered at a faster rate of speed than the ground thread. To form the desired loop, sufficient twist is necessary.

A diamond yarn consists of a thick ground or core thread around which two fine yarns, usually of different colors, are twisted in opposite directions. The "effect" threads are delivered at a rate of about 1½ times that of the ground thread. Two operations are necessary, and the correct twists must be used to obtain the required diamond effect in the final twist.

For slub, flake, or cloud yarns, the foundation threads are fine singles and the "effect" end is a thick roving of short-staple material. Cotton, wool, spun silk, or rayon cut staple may be used. By means of gap gears the soft, short-staple roving is delivered intermittently in very short lengths, and these are twisted around the foundation thread. In the slub yarn the end is not broken. In cloud or flake yarns the end (roving) is delivered in short, detached lengths. The yarn thus produced must be retwisted with a binder thread.

Snarl yarn is made by following the procedure outlined for loop yarns, using one end with the usual twist as a ground and a hard-twisted end to produce the snarls. The rate of delivery of the "effect" yarn determines the length of the snarl.

The use of spinning frames for the production of novelty yarns is not recommended. No individual stop motions are possible, which results in an increase of waste. Slow speeds are necessary, and the yarns used must be very even and free from slubs, bad piecings, and the like.

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Cotton Yarn Kinked

Technical Editor:
We are inclosing two reelings of yarn, one marked *A* and one marked *B*. Yarn *A* is satisfactory for transferring work on full-automatic machines in the half-hose trade. Yarn *B* gives some trouble, which seems to be due to too much twist. It results in many kinks appearing in the top, heel, and toe. We believe we have reduced the twist in yarn *B* as much as possible, but we shall value your opinion on the cause of the trouble. Could it be conditioning? (8083)

Without seeing the yarn actually being run in the machine and observing the conditions under which the machine is operating, we find it difficult to offer a thoroughly satisfactory reply. The yarn count is 14s or 15s. Yarn *A* is made of a longer-staple cotton; and therefore less twist has been inserted in it than in yarn *B*, which is made of a shorter-staple cotton. The cotton in yarn *A* would staple approximately 1 1/16 in. plus, whereas the cotton in *B* is under 1 1/32 in. This would mean, on the basis of staple length alone, that yarn *B* would have to have more twist per inch than yarn *A* to make it spin as well. A difference in twist always gives a difference in results at the knitting machines. Generally speaking, there are 4 to 7 turns per inch more in yarn *B* than in yarn *A*.

You did not state whether or not either or both of the yarns were conditioned to any extent. Conditioning would help, providing suitable methods are used. Under normal conditions, kinking is due to excessive twist, which in turn is generally a result of using short-staple cotton or an unsuitable character of cotton, or of permitting unsuitable machine conditions, having insufficient moisture in spinning, etc.

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Tension on Braid

Technical Editor:
Can you tell us of anyone who has a device on the market for keeping a constant tension on braid as it is pulled off a large spool? (8104)

We do not know of a machine of this character on the market. Such devices are usually conceived by the fixer or other mechanic in the department or concern where the necessity arises. We suggest a friction applied to the head of the spool, variable with the speed at which the material is drawn off—or a cloth apron applied directly to the material for almost the entire length of the spool.

QUESTIONS AND ANSWERS

Zebra Stripes in Hosiery

Technical Editor:
We are inclosing herewith two stockings produced from 140/2 Sak. cotton, crepe twist, spun in our mill. The knitter has drawn our attention to the horizontal lines in the finished hose. We are at a loss to understand the cause of this defect. (8090)

This defect is commonly referred to in the mercerizing trade as "zebra" stripes. The fault can be produced in natural yarn by improper selection of cotton. It is important that the cotton be of uniform color and quality. The nature of cotton should be determined when the yarn is to be dyed in delicate shades; that is, its affinity to dyestuffs should be ascertained. If raw cottons of different natures and tints are employed, they should be so carefully blended and mixed as to diffuse any uneven dyeing qualities to such an extent that zebra stripes do not appear. Boiling-out, mercerizing, chemicking, washing, drying, etc., will have to be carried out carefully to insure uniform treatment of the yarn. We believe that a careful check-up along the line of these suggestions will eliminate the trouble.

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Warping Un-Soaked Silk

Technical Editor:
We are having quite some trouble in beaming our warps for satin, made of pure-silk yellow 20/22. When stopping, the ends start flying and sometimes we have as many as 100 ends out in a warp. We must *not soak* the raw silk and do not want to spray. We are using 83% silk as free from gum as possible. Have you any suggestion to make to help us? An immediate answer would be appreciated, as we have quite an order on hand for these satins and must warp them at once. It is a double warp with about 21,000 ends. (8112)

Warpers who are not accustomed to warping dry silk will have a great deal of trouble in beaming down the warps. Once the mill help has handled dry silk, however, there will be no trouble. Follow these suggestions, and you will attain satisfactory results:

If your warping machines are equipped with three rollers on the table, remove two and place the remaining roller within ½ in. or closer to the paddle, so that there will be only the one roller on the table. Fasten a piece of sponge beneath the roller, large enough to rub the underside of the roller wider than the band. Keep this sponge well saturated with a solution of soaking oil and water (half and half); and when the roller starts to become dry, have the warper place more of the solution on the sponge. This solution will keep the roller wet; and the silk, in taking up this moisture, will be prevented from flying.

The brake should be so arranged that a quick stop is avoided, the warper slowing down before coming to a lease or cut-off.

Do not cram the sections; the band setter should have a very slight clearance, as the dry silk will spread slightly more than silk which has been soaked.

If an end breaks out, have the warpers try brushing it back and avoid any take-back. A warper's "Dutchman" is an ideal

method of finding lost ends. This is a wad of silk put in and caught when beaming.

There is very little trouble in warping the un-soaked silk after a few warps have been made.

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Stains on Knitted Garments

Technical Editor:
Inclosed is a knitted garment on which you will notice brown stains. We have had a number of these garments returned for this reason. Will you kindly tell us what is causing these stains. (8087)

It is not easy to state at just what operation in the process of manufacture the stains appeared, if they did get on the cloth in the making of the garment. We are returning the garment which has been washed in a lukewarm water with a neutral soap. You will notice that the stains have been completely removed. This shows quite conclusively that the stains are not of an oily nature. They appear to be from dirty water which has been splashed upon the cloth. It does not seem possible however that a garment showing the amount of stains that this one did could have passed your inspection and packing departments. We suggest a careful check of the cloth coming from the dyehouse, and also after each operation, to see if the stains show up at any point. Also check to see if the garments are being returned from the same customer; it is possible that the goods were stained after leaving your plant.

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Insect Damages Silk

Technical Editor:
We are inclosing herewith a worm which we found in our full-fashioned gray stock and which we have reason to believe has been eating into the silk. Kindly advise whether or not this particular species does eat into the silk. Also please suggest methods for eradicating the pest. (8113)

We have forwarded your inquiry to the Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C., and received the following reply:

"The insect sent is a larva of the webbing clothes moth, *Tineola biselliella*. This is our most common clothes moth pest of homes and manufacturing establishments, but is not recognized as a pest of any importance affecting silk products. It may have developed in some other material and crawled accidentally into the hosiery where it was found. We have known of instances where silk goods have been severely eaten by moth worms, but in these instances the worms have eaten the silk fabric only by accident in getting material to spin their cocoons or when the silk has been lying against a woolen fabric from which the worms were really getting their food. Lots of silk, linen, and cotton goods will never be affected by clothes moths under normal conditions. Carpet beetles, however, are apt to eat silk fabrics and have been reported from silk establishments fairly often.

"General information regarding fabric pests is given in Farmers' Bulletins 1353, 1655, and 1346."

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Defect in Rayon Crepe

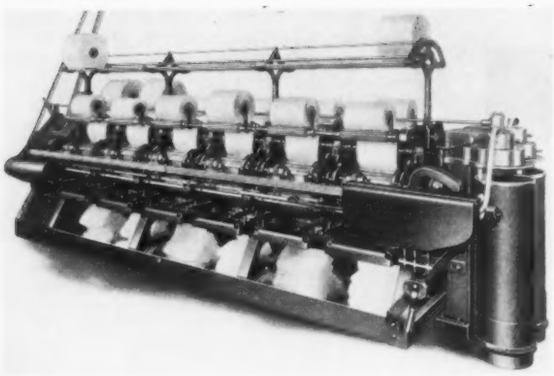
Technical Editor:
We are forwarding a bobbin of 150-denier, 60-filament viscose rayon, thrown 48/50 turns, left twist, for your examination and opinion as to the cause of the defects. The defect consists of pinhead cockles or spots in the yarn that look like bunched-up, open filaments which the twist did not absorb.

This yarn was soaked in a solution of sulphonated coconut oil and gelatin, the bath being made up of 4 lb. of gelatin and 20 lb. of oil (in 40 gal. of water). The yarn was soaked for 30 min. at 130°. After soaking, the yarn was extracted very lightly, hung in dry box with maximum temperature of 170° F. and allowed to remain absolutely dry. After removing from the dry box, the skeins were allowed to remain on the poles and hung in the main room for a period of 8 or 10 hr. in the hope that they would pick up natural moisture. The yarn was then wound at a very good speed with reasonable weights on the swifts. The yarn was then put on twisters with spindle speed of 10,500 r.p.m. and a flyer of No. 12 wire was used. The twist was set in an electric steam box—the dry bulb reading 170°, and the wet bulb, 160°. The yarn was steamed for 3½ hr. and then allowed to cool for 5 hr. before redrawing on shipping spools. The redraw speed is very moderate. (8098)

You do not mention the quantity of rayon soaked, but since the general practice is to soak 110 lb. in a batch, we assume that this was done in the present case. Your statement that you used a solution of 20 lb. of oil and 4 lb. of gelatin in 40 gal. of water, after which the yarn was extracted very lightly can lead to only one conclusion; the oil and gelatin remained on the skein in a semi-liquid state and gradually seeped down to the lower half of the skeins as they hung on the drying poles in the dry box. As the drying progressed, an excess of gelatin remained at numerous points on the thread and this gelatin had the tendency of retaining the original right twist while the twister spindle endeavored to twist to the left. Examination under a microscope shows the presence of free gelatin.

No definite specifications can be given for a proper soaking solution, since there are as many opinions as there are throwsters; but a definite rule can be laid down to govern the time of extracting, qualified of course, by the size and speed of the extractor being used. A batch of rayon upon being removed from the extractor should weigh approximately double its original weight. That is, if 110 lb. of dry yarn is soaked, the rayon should weigh 220 lb. when it leaves the extractor. A few experiments in your plant will determine the proper time to be allowed for extracting, and this should be faithfully carried out either by a careful worker or with the aid of a time switch. A speed of 8,500 r.p.m. is best adapted for 150-denier, although speed was not responsible for this particular defect.

NEW MACHINERY



Cotton Comber

Saco-Lowell Shops, Boston, has completed its line of machinery for handling cotton from the bale to the loom by taking over the manufacture and sale of the double-sided comber recently developed by the Alsatian Machine Works, Ltd.

Designed with certain aims in view, it is said of the all-important nippers that: they cannot get out of adjustment; they are not positively connected with their actuating mechanism; they are stationary during the combing by the cylinder and are set close to the cylinder needles; they are actuated by a single, central shaft; the cushion-plate is the non-yielding member of the mechanism.

The single, central, actuating mechanism makes for a saving in floor space and a reduced number of parts. To control the percentage of noil for all twelve heads of the machine, there is a single regulating screw in a disk fastened to the nipper-actuating shaft. There is one combing cylinder to each nipper, the cylinder carrying a 17-bar half-lap of new type which is designed to permit accurate and quick building of the half-lap.

As the needles are set very close to the cylinder, the manufacturer maintains that every needle-bar, beginning with the first, accomplishes some combing; that the needles penetrate deeper into the beard; and that, due to less likelihood of damage, the machines require reneedling only once in nine to twelve months. Other features included are: double-drum aspirator to keep the comber clean; top-comb lasts up to ten years; and improved feed-roller, feed-mechanism, fluted rollers in draw-box, and brushes.

Considering the characteristics of the machine, Saco-Lowell asserts that it will produce a uniform sliver and give unusually high production with consequent low operating costs, with low maintenance costs, and with economy of floor space.

Circular-Hosiery Developments

A series of interesting developments in knitting machinery for men's, women's, and children's circular hosiery has been announced by Scott & Williams, Inc., 366 Broadway, New York, and its subsidiary, Standard-Trump Bros. Machine Co., Inc., of the same address. The union of these two long-established machine builders a few years ago has made possible an interchange of features between the two lines of equipment, and this fact has been responsible for some of the new machines, while others have been developed independently by one organization or the other.

Square Heel Improved. The square-heel development for women's seamless hosiery has now been carried further by Scott & Williams with a view to extending the heavier fabric a greater distance under the heel, where considerable wear is encountered.

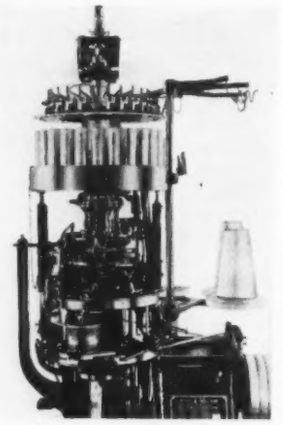
As described in the December, 1932, issue of TEXTILE WORLD (page 106), the original square heel was produced by taking only one needle out of operation on every three reciprocations, thus inserting extra courses above the gore. The new heel is knitted in the same manner to the gore line, and then a gusset is inserted by the method now regularly employed for knitting the gusset toe. In other words, all needles are returned to action at once and a new gore is started. This is a short gore of only some eleven courses and is begun three needles nearer the center than the previous gore (which was begun some distance below the center) in order that double strain will not be placed on one

loop. A special arrangement gives the gusset a looser stitch than the main part of the heel in order that puckering of the fabric will be avoided and its elasticity will be increased. A one- or two-course gusset follows the short gore.

The new heel places the foot at even more of a right angle to the leg, thus improving the fit of the stocking and further reducing its tendency to slide up or down and pull against toe.

Automatic Half-Hose Machines. Two developmens have been announced by Scott & Williams in connection with the automatic half-hose machine, Model HH, which knits the rib top continuously with the body of the hose. Actually, two new machines have been developed—one, the model HH-PW, which embodies panel-wrapping equipment; and the other, the model HH-NRP, which is equipped for needle reverse plating. The new models were developed by combining the individual characteristics of several machines—the wrapping, for example, being borrowed from the model ES ("embroidery-stripe"); and the needle plating, from the principles employed on several machines of Standard-Trump Bros.

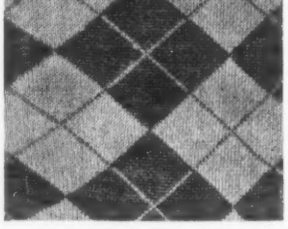
To apply wrap striping to the HH required the development of a special head of new construction from the latch ring up. The particular problem to be overcome was that of applying the wrapping fingers without interfering with the operation of the rib cams. This was accom-



plished, as clearly shown in the accompanying photograph, by placing the wrapping equipment immediately above the cylinder and running the dial drive up over it. The use of 18 steps and 24 colors is allowed for.

Sinker reverse plating has been available on HH machines for some time, but limited to 5 steps. The needle reverse plating now applied affords 25 steps and surer plating. It involves a mechanism for pushing the needles back into reverse-plating position and a new cylinder cut to permit the required movement of the needles. Selection of the needles is through a special jack arrangement. A sample is shown below.

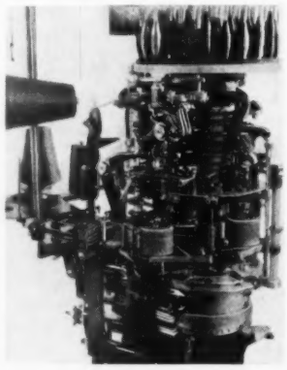
Mock Wrap on Rib. An attachment for producing mock- or imitation-wrap patterns has been applied by Scott & Williams to the model RI or ribbed-instep hosiery machine. The attachment is of course operative only on the cylinder needles. Three selective steps are provided; and a new cutting attachment serves to sever the pattern yarns on the machine, thereby eliminating the waste of expensive yarns. It is now pos-



sible to equip the plain RI machine with high-spliced-heel and double-sole attachment provided with automatic splice cutter.

Shog-Wrap Machine. When Standard-Trump Bros. Machine Co. developed its Model L hosiery knitter some years ago, it offered a machine with a wrap on every needle of a 200-needle, 3½-in. stationary cylinder and with the ability to shog. The latter feature meant that the finger cylinder could be shifted to the right or left several needles and the wrapping yarns carried from one wale to another. The gage and production limitations, however, restricted the use of this model to the knitting of high-priced wool or lisle hose. The revolving-cylinder machine, Model H, for fine-gaged goods could not produce individual-needle-wrap patterns.

Two years ago Standard brought out a revolving-cylinder machine, the Model 80W, which knits 80 wrap yarns on individual needles and produces hosiery with high splice, double sole, and gusset toe in gages up to 300-needle, 3½-in. cylinder. In other words, the development permitted the production of individual-needle wrap patterns on the silk, rayon, and other fine-yarn hosiery in demand today. Furthermore, the 80W operates at 200 r.p.m., as against the 150 r.p.m. of the model L. This development involved a loss, as compared with the model L, in the number of wrap yarns which could be employed; but this was not a serious sacrifice in view of the high design capacity which the 80W affords. It also, however, left behind the ability to shog, which meant that on the new machine a wrap yarn was confined to one needle and that therefore the same color would prevail continuously or inter-



mittently throughout each wale.

But this year Standard has applied shogging to the 80W. In other words, as the needle and finger cylinders revolve, the latter can now be stepped forward or backward a distance up to fourteen needles, carrying the wrapping yarns from one wale to another as the pattern may dictate. The basis of the machine is the Standard model H, to which has been applied the Scott & Williams 25-step spiral mechanism for selecting the needles to be wrapped, this mechanism being synchronized with the new 15-step shogging attachment. Both mechanisms are operated by three-control trick wheels, with the result that different effects, for example, can be given the heads, stems, and finishes of clocks. The various yarns throughout the clock can be made to alternate down the stem, thus giving attractive effects and tying in the vertical floats on the back. Two wrapping points are provided in order that it will not be necessary in the case of all-over patterns to knit a plain panel at the back of the leg. The wrap yarns are knit without tension, which enhances the raised embroidery effect. The variety of patterns is almost limitless.

In addition to the shogging

AND PROCESSES

attachment, two other improvements have been applied to the 80W. One is the rapid transfer attachment, new only in application, which simplifies the work of the operator and speeds up the operation. The other consists of means for producing the English split-foot sole on a revolving cylinder, using a different yarn in the sole from that in the instep. The foot yarns in the case of the English bottom are cut automatically each half revolution.

Indelible Transfer for Hosiery

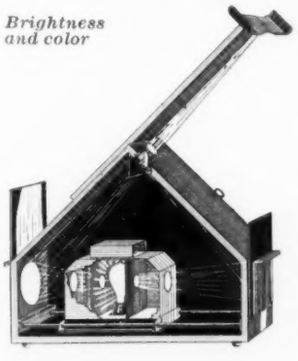
Of particular interest because of the requirements of the hosiery code that "seconds," etc., be indelibly marked, "Code Composition," described as an indelible transfer, has been brought out by the Kaumagraph Co., 200 Varick St., New York. It is declared that the new transfer is not affected by redyeing and that it cannot be removed by abrasion or by any known chemical without great danger of injuring the fabric. It is understood that tests conducted by the U. S. Bureau of Standards have shown the transfer to be indelible.

Reflectometer and Glossmeter

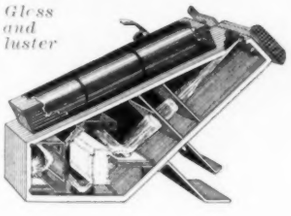
Two instruments for the measurement of color and gloss have been developed by Henry A. Gardner Laboratory, 2201 New York Ave., Washington, D. C. The "Reflectometer" will measure brightness, whiteness, color change, color difference, fading, yellowing, etc. The instrument makes use of a pattern mirror to compare the reflecting characteristics of two fabrics. The position of an incandescent lamp, which provides variable illumination on the samples, determines relative reflecting powers. A scale on the instrument gives directly the ratio of the diffuse reflecting powers of the two samples, or of the sample and the standard.

The "Glossmeter" gives a direct reading of the objective gloss of any surface, such as a mercerized fabric. The observer balances the specular reflection from a standard surface of polished, black glass against the specular reflection of the sample; and the gloss value can then be read. Action is independent of the color of the sample, except of a small correction.

Brightness and color

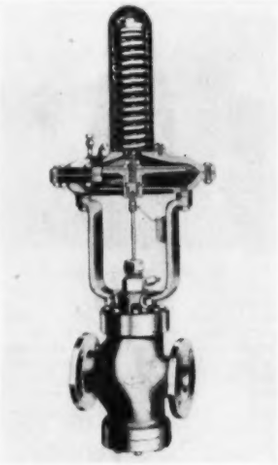


Gloss and luster



Controlled Valve

The "Stabilflo" valve, specifically designed by the Foxboro Co., Foxboro, Mass., for use with air-operated control instruments, reverses the usual position of the diaphragm and



spring. This construction is said to permit an exact response to changes demanded by the control instrument and, since the diaphragm motor is suspended, to insure smooth valve action. The motor requires no guides, and a flexible coupling between motor and valve stem allows the latter to establish its normal alignment.

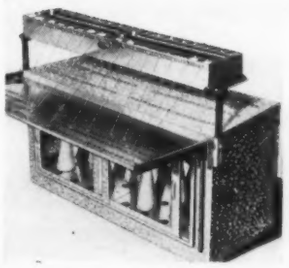
Other features of the valve stressed by the manufacturer are: valve-stem lubricator to reduce stuffing-box friction by protecting and lubricating the packing; motor designed with power factor ample to give control results equal to theoretical valve characteristics; equal percentage-flow characteristics between 2% and 100% valve capacity; open throat of the yoke permits circulation of air and guards against excessive temperatures; position index shows position of valve plunger.

Improved Mill-White

Improvement in five directions in its "Barreled Sunlight" is noted by the U. S. Gutta Percha Paint Co., Providence, R. I. The company started out with the idea of bettering all the essential features of its paint, to give high light reflection and low cost of application and maintenance, and states that the following improvemnts have been achieved: far whiter, hence greater light-reflecting power; remains white longer; spreads farther; "hides" better; flows easier.

Moistening Equipment for Hosiery Machines

Two recent improvements have been made standard equipment in the moistening units manufactured by Joseph Amon, Rahway, N. J., for use in the full-

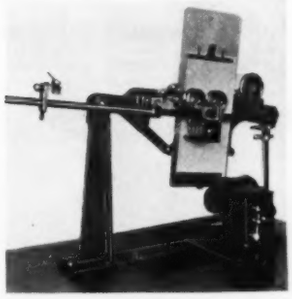


fashioned hosiery industry. The "Triplex" bracket combines the box, trough, and splash-pan in one unit, giving solid support to the splash-pan and trough.

Another feature is that "Multipunching" of the boxes, troughs, and pans makes it easy to add guiding eyelets for threads, or to change their position in accordance with any production changes in the machine. Interchangeable bobbin pins are also standard.

Inclined-Plane Recording Serigraph

A small model of the constant-rate-of-load testing machine, of the inclined-plane serigraph type, has been developed by Henry L. Scott Co., Provi-



dence, R. I. The machine is adapted to tensile or fatigue tests of low-strength yarns, such as silk or rayon, and is available for 0 to 500 grams or 0 to 1,000 grams capacity. Registration is on coordinate charts of 10 lines to the inch in both the strength and stretch directions. Thus on the 500-gram model each strength line represents 5 grams, and on the 100-gram model each line represents 10 grams. The stretch line is 5 in. long, direct reading; and on a 10-in. specimen each line represents 1%. Specimens of any length from ¼ in. to 20 in. may be used.

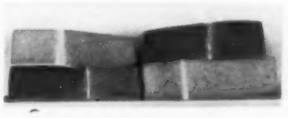
Lined Centrifugal Pumps

For pumping acids and other corrosive liquids, U. S. Stoneware Co., Akron, Ohio, has brought out series 520 armored centrifugal pumps lined with chemical stoneware. The casing, impeller, and all parts coming in contact with the corrosive solution are covered with stoneware.

Features brought out by the manufacturer are: double packing-gland to prevent spraying; semi-automatic gland adjustment; adjustable impeller clearances; stoneware parts ground into protecting armor; corrosion-resisting alloys used for metal parts that might be injured by fumes; pump bearings may be taken up without altering impeller alignment.

Rayon Size in Brick Form

For sizing rayon and other synthetic yarns, a gelatin-base sizing material, made in the form of highly concentrated 2-lb. bricks, has been developed recently by Textile Chemical Products Co., Greensboro, N. C. Two types of size are offered—a natural cream-colored brick for regenerated cellulose yarns, and one which is tinted green for acetate yarns. Advantages claimed for the new sizing material include the following: bricks of uniform weight elim-



inate weighing or measuring at mill; size is easily handled with no waste; material is dehydrated to approximately 15% moisture content and shipped in 100-brick lots in corrugated cardboard cartons, thus effecting saving in freight; each type of size carefully compounded from twelve different ingredients to give good weaving properties to yarn and to facilitate production of finished fabric with soft and desirable hand.

In order to prepare the sizing solution, it is necessary only to run the required amount of water into a size kettle and add the correct number of bricks, which dissolve in from 8 to 10 min. For regenerated cellulose yarn, one 2-lb. brick is required to each 10 gal. of water; for acetate yarn, one 2-lb. brick to each 2 gal. of water.

Portable Current Transformers

A portable current transformer, for use with indicating and recording instruments, has

been placed on the market by Esterline-Angus Co., Indianapolis, Ind. Each transformer has nine primary current ranges of 10, 12½, 25, 50, 100, 160, 200, 400 and 800 amp. capacity. The secondary capacity is 5 amp., adapting the instrument for use with all standard a.c. ammeters, wattmeters, and power-factor instruments. The containing case is of cast aluminum and is filled with an insulating compound which excludes moisture.

Transmission Belt

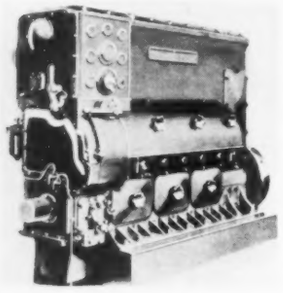
Developed with the particular demands of small-diameter pulleys in mind, Alexander Bros., Philadelphia, are marketing their new "Monobelt" leather belting. In the construction of the belt, vegetable-tanned leather is used and is stretched by a special process;

the amount of stretch being regulated in each piece of leather. In double-ply belt, the pulley side is made of leather from which all but the minimum of stretch has been removed, but the outer ply is made of more elastic leather. Use of this construction is said to reduce internal friction and to give better contact with the pulley. Monobelt is not suitable where the belt is to be subjected to reverse flexing, such as idler-pulley or serpentine drives.

The new belt is made in only one standard thickness for each width, thickness increasing with the width.

Opposed-Piston Diesel Engine

Light weight and reduced space requirements are features of the new opposed-piston diesel engine developed by Fairbanks, Morse & Co., 900 S. Wabash



Ave., Chicago. This type of construction confines the combustion space between the two pistons, making for improved combustion and better cooling, as well as allowing a substantial reduction in the number of parts. Opposed-piston engines are inherently balanced because the reaction forces of the two pistons tend to counteract each other, permitting higher rotative and piston speeds. Weight has been brought down to 20 lb. per horsepower.

Scrubbing Machine

Said to be the largest single-brush, floor-scrubbing machine on the market, the Majestic Model has been brought out recently by Fay Co., 130 Madison Ave., New York. The Company stresses the following features: 140-lb. pressure on the floor; brushes used are 18 in. in diameter, with spread of fiber of 20 in.; minimum number of balanced moving parts employed in transmitting power from motor to brush; angular and thrust bearings have positive lubrication from outside grease cups; spiral-bevel, and helical-cut gears for quiet operation; brush fully inclosed to prevent coming in contact with outside objects.

Combination Float-Thermostatic Trap

An addition to the line of Type FTO-H steam traps, capable of handling working pressures up to 180 lb. per sq.in., has been announced by Sarco Co., Inc., New York. The trap is light in weight and designed to be supported directly on the piping, the inlet and outlet being a short distance apart on the same side for easy connection. The automatic air bypass is located on the crown-board side of the trap, so that the thermostatic element is not exposed to the full steam pressure. The main discharge valve and seat are of stainless steel. All working parts are on the cover and can be exposed for cleaning by removing the trap body without disturbing the connections.

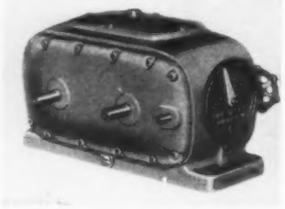
Natural-Draft Stoker

In order to provide for fixed attachment of controls, a frame construction capable of handling expansion, and for simple conversion to forced draft if desired, Combustion Engineering Co., Inc., 200 Madison Ave.,

New York, has redesigned its Green natural-draft chain-grate stoker. The new design has a stationary structure fixed into the setting. This consists of transverse channels supported on posts at either side, to which, in turn, are fastened angles parallel to the side walls; skids supported on I-beams carry the weight of the chain at the bottom. A pipe, flush with the side wall, and extending nearly the length of the stoker, carries the adjusting rod and takes the tension off the frame. While the take-up in the tension of the chain is at the rear, the actual adjustment is at the front.

Variable-Speed Transmission

A self-adjusting, positive, variable-speed transmission for fractional horsepower duty,



known as the Link-Belt V.R.D., has been announced by Link-Belt Co., 910 S. Michigan Ave., Chicago. The V.R.D. is capable of an output of ½ hp. and of a speed-variation ratio of 10 to 1.

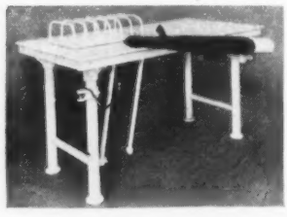
A side-contact roller chain, consisting of steel links made endless and connected by hardened steel pins in steel bushings, is used for transmitting the power. Openings in each pitch of links provide a pocket for each of two steel rollers, and from both sides a portion of roller protrudes sufficiently to permit each pair of chain rollers, at each engagement of chain and wheels, to roll into contact with the conical, opposed disks forming the driving and driven wheels. The V.R.D. is totally inclosed and self-lubricated in an oil bath.

Rayon Winding Spindle

Collins Supply & Equipment Co., 1355 Monsey Ave., Scranton, Pa., has brought out a new rayon winding spindle featuring a quick-acting, 8-pitch thread for adjusting the bobbins. The spindle is made in two models. For use with spinner bobbins having ferrules, a bushing or cone-nut is supplied next to the head for centering the taper-hole of the bobbins. Where bobbins have a small hole in one end, the cone-nut is omitted. The company states that equipping one half the winders with each type gives a flexible layout; or, if desired, standard bobbins can be counterbored so that they will receive the bushing and can be turned either way. The spindles are made with either plain, cork-covered, steel, or wood heads. Fiber tips may also be had if desired.

Hosiery-Mill Table With Auxiliaries

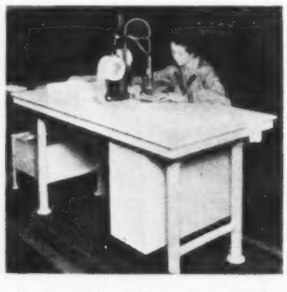
The framework of a "universal" table for the hosiery industry has been placed on the market by Textile Machine Works, Reading, Pa., together with various types of auxiliary equipment to go with the table. The framework itself is described as being light enough to permit easy moving but having enough weight to remain stationary under ordinary circumstances. Features are: welded, tubular legs; light, steel frame; leg brackets designed for use with one table or for joining two or more together.



As examining table

The following auxiliary tops are offered by the manufacturer:

1. A general-utility table, with either an enameled-steel or Carrara-glass top, for ticketing, packing, or wrapping.
2. A "Trurex" expanding form, which expands the stocking from toe to welt, according to the width of the fabric. An adjustment screw provides for regulation of width and an adjustable toe-piece takes care of all sizes. The stocking to be examined is first inserted through a hole in the side of the form, pulled out another hole in the small end, and so slipped over the form with the reverse side exposed.
3. A plain form for those who prefer an examining form



As transfer stamping table

without the expanding feature, with a dividing-rack in either three or six divisions and a stocking-bin of all-welded construction.

4. A smooth, Carrara-glass top, conveniently arranged, for pairing of delicate merchandise.
5. A "universal" steel frame, plus a Carrara-glass top, plus a Reading electric transfer-stamping machine. In this layout is included space for storing transfers and a waste box for disposal of used transfers.

Lastex Rib Eyelet With Shaping

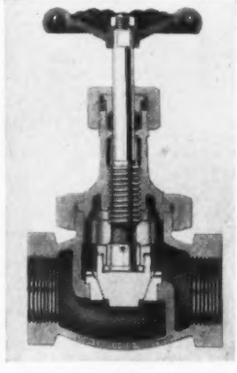
A combination of comfort, fit, and ventilation in girdles and other knit underwear is the purpose of recent modifications made in "Rib-llet" machines by Scott & Williams, Inc., 366 Broadway, New York. To 12- and 14-cut machines with eight regular feeds have been applied two Lindley laying-in and shaping attachments for inserting Lastex or other covered-rubber yarn and fashioning the garment. The Lastex may also, of course, be knitted in on the regular feeds, thereby affording stretch vertically as well as sideways. The machine will change automatically from 2x2 rib to rib eyelet and vice versa.

The automatic fashioning permits the shaping of the garment to conform to the requirements of the human form. A fabric knit 10½ in. at the widest portion would require 24 in. of Lastex per revolution. The narrow portion of the fabric, about 8 in., would require 16 in. of Lastex. For the laying-in a size G-3 Lastex yarn is used, and for the knitting feeds a size 09-3 is recommended.

The machine is built in sizes ranging from 12 to 26 in., with 14-, 15-, and 16-in. diameters most in demand for foundation garments. A 16-in.-diameter machine operating at 30 r.p.m. will produce approximately 24 17-in. garments per hour.

Plug Type Valves

The Lunkenheimer Co., Cincinnati, Ohio, recently announced plug-type seat and disk valves



for severe service demanding maximum resistance to destructive action on valve seat bearings. Seats and disks are made of special non-ferrous alloy of great hardness. Each plug is ground into its own seat, to a uniform bearing from end to end, insuring a leak-proof fit.

"Arc Arrestor" for Contactors

For the purpose of speeding a.-c. arc extinctions, an "arc arrestor" for mounting at the base of a contactor or linestarter has been developed by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The unit consists of a small capacitator and resistor connected across the poles on the load side of the contacting device. With the device in place, oscillograms showed less than one-half cycle arcing in tests involving 550 volts, 60 cycles with a 7½-hp. motor, rotor locked, as load. But one unit is required for a three-phase contactor and relief is afforded not only for the contactor or linestarter, but also for any rupturing device connected ahead of the contactor. In three-phase reversing service, one "arc arrestor" acts with equal effectiveness to relieve either the forward or reversing contactor.

NEW PUBLICATIONS

Chemical Engineers' Handbook; John H. Perry, Editor-in-chief; Published by McGraw-Hill Book Co., Inc. Price $9.

This reference book on chemical engineering and related subjects was written by 60 specialists, with the cooperation of over 100 chemists and engineers. It is planned for use by executives, plant superintendents, chemists, engineers, etc. Among the 30 sections in the handbook, of particular interest to textile men are included those on flow of liquids, flow of heat, evaporation, humidification, drying, mixing, materials of construction, material transportation, and power.

Cotton Breeding Investigations, Agricultural Experiment Station, State College, New Mexico.

The progress made on a project begun in 1928 to improve the quality of New Mexico cotton is reported only through 1932 in a bulletin issued in 1934. At the close of the 1932 season cotton family "No. 504" was giving promise with respect to length and uniformity.

Hosiery Lengths, Commercial Standard CS46-33; Supt. of Documents, Washington, D. C.; 5c.

Description of standard methods of measurement and standard measurements for women's, men's, children's, and infants' hosiery approved by U. S. Bureau of Standards and made effective as of July 1, 1933.

Science in Buying; Kaufmann Department Stores, Pittsburgh, Pa.

This booklet which is based on a series of radio talks delivered by Fellows of Mellon Institute, is designed to give the general public a better understanding of important commodities. Included is a section by Charles F. Goldthwait on "Textiles and Their Quality," in which the question of consumer standards for textiles is discussed briefly.

Textile Manufacturer Year Book 1934; Emmott & Co., Ltd., Manchester, England; Price 3s. 6d.

The latest edition of this well-known handbook contains new sections on cotton yarn costing, high drafting, cotton waste spinning, manufacture of novelty yarns, reeling and bundling, use of rayon yarns, silk weaving, woolen carding, qualities of worsted tops, printing of wool fabrics, chemical tests of textile materials, and review of machinery developments. Other sections have been revised and brought up-to-date.

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Business Literature

Wool Dyeing. Geigy Co., Inc., New York City. Color card of fast-to-light popular shades produced on woolen fabrics with "Erio Fast" and "Erio Anthracene" colors.

Paint. Detroit Graphite Co., Detroit. Illustrated catalog describing mill whites and other paints for conservation of light, etc., and containing charts and specifications for use of paints to suit varying operating and exposure conditions.

Corrosion - Resisting Metal. Lukens Steel Co., Coatesville, Pa. Bulletin giving examples of the use of nickel-clad steel in the chemical and textile fields.

Pumps. Worthington Pump & Machinery Co., Harrison, N. J. Three pamphlets giving specifications on rotary, centrifugal and triplex single-acting pumps, respectively.

Plastics. Bakelite Corp., Riverroad, R. I. Illustrated booklet dealing with the subject of Bakelite molding materials and their uses, including textile, together with description of the molding process and needed equipment.

Firebrick. Plibrico Jointless Firebrick Co., 1800 Kingsbury St., Chicago. Catalog covering uses of Plibrico Jointless Firebrick and other refractory materials.

Lathes. South Bend Lathe Works, South Bend, Ind. Catalog showing various types of lathes suitable for mill machine shops.

Processing. Armstrong. Machine Works, Three Rivers, Mich. Issue of The Armstrong Trap Magazine containing an article on an application of individual traps to a textile dryer.

Aluminum Coating. Quigley Co., Inc., 56 West 45th St., New York. Illustrated circular showing applications and advantages of aluminum coatings for exposed metal surfaces.

Hoists. The Harnischfeger Corp., Milwaukee, Wis. Bulletin illustrating various types of hoists for general and specific purposes.

Winding Equipment. Fidelity Machine Co., 3908-18 Frankford Ave., Philadelphia. Illustrated leaflets showing the Fidelity-Altemus line of winders, spoolers, beamers and other machines for handling yarn, tape and braid.

Chemicals. General Dyestuff Corp., New York. Circular describing "Ramasit K Conc," and its uses for impregnating slubbing, wool yarn, hosiery and knitted materials.

V-Belt Drives. T. B. Wood's Sons Co., Chambersburg, Pa. Price list for all sizes and types of Wood's V-Belt sheaves and belts.

Power Pumps. Worthington Pump & Machinery Corp., Harrison, N. J. Bulletin describing vertical triplex single-acting type power pumps equipped with "multi-v-drive," and giving engineering data.

Gears. Poole Foundry & Machine Co., Woodberry, Baltimore, Md. Catalog of machine molded gears, listing approximately 10,000 different sizes, kinds and types of gears.

Filtration Equipment. Pfaltz & Bauer, Inc., 300 Pearl St., New York. Booklet on the Zsigmondy Ultrafiltration apparatus and membranes.

Aluminum. Aluminum Co. of America, Pittsburgh, Pa. First issue of Alumium News-Letter, a monthly publication devoted to developments in the aluminum industry.

Motors. The Louis Allis Co., Milwaukee, Wis. January-February issue of *The Louis Allis Messenger* containing data on motors and their application.

BUSINESS NEWS

Cameron Machine Co., Brooklyn, N. Y., has elevated William B. Wilshusen to the position of president to succeed the late James A. Cameron. He was formerly secretary of the company.

Textile Spindle & Roll Corp., of Charlotte, N. C., has been incorporated with an authorized capital stock of $100,000 to manufacture and sell textile machinery, chemicals and chemical products.

Gastonia (N. C.) Brush, Roller, Flyer & Spindle Co. is enlarging its factory.

Belger Co. has made Curran S. Easley, Greenville, S. C., selling agent for North Carolina and South Carolina. Fred P. Brooks, Atlanta, Ga., holds a similar position for Georgia, Alabama and southern Tennessee.

F. C. Todd, Inc., Gastonia, N. C., has been chartered to deal in textile machinery and supplies. The authorized capital stock is $25,000, of which $300 is subscribed.

Victor Chemical Co., Chicago, is displaying at the reopened Century of Progress a miniature built to scale of its Tennessee plant for manufacturing various phosphates employed in the textile and other industries.

A. B. Coffman, for 20 years active as a manager for trade exhibits and expositions in Detroit, Boston, Chicago and New York, has been appointed exposition manager for the Merchandise Mart, Chicago, and will have charge of exhibits and conventions held on the second floor of that building. In addition Mr. Coffman will continue his work of managing shows as in the past.

Royale H. Rasch, of Berlin, N. H., is now with the **Savannah Paper & Pulp Co.**, Savannah, Ga., experimenting with Georgia pine woodpulp in the direction of rayon manufacture.

Douglass Annin, who has been actively identified with the distribution of industrial process controls for the last 10 years, has joined the industrial regulator division of **Minneapolis-Honeywell Regulator Co.**, according to an announcement by C. B. Sweatt, vice-president in charge of sales.

Foster Wheeler Corp., New York, has taken over exclusive rights for the sale and manufacture of the Ruths Steam Storage Systems in the United States and Canada. Ruths accumulators will complement the present line of Foster Wheeler power plant equipment. G. M. Cameron, formerly manger of Ruths Steam Storage Co., will be manager of the Ruths Accumulator Division of Foster Wheeler.

Schachner Belting Co., Charlotte, N. C., has added to its sales force Harold Mahon and Gene Hammond, both of Greenville, S. C.

Timken Roller Bearing Co., Canton, Ohio, announces that Ralph P. Brown, formerly in charge of publicity for the National Lime Association and the Brown Instrument Co., and recently conducting an independent business-paper editorial service in Cleveland, has joined the advertising department of the Timken Co.

Textile Banking Co., N. Y., announces the appointment of Kenneth A. Durham as southern representative. Mr. Durham has been associated with the Richmond Hosiery Mills, Rossville, Ga., as head of credits. He will make his headquarters at Charlotte, N. C.

Mossberg Pressed Steel Corp., Attleboro, Mass., has elected R. V. Olsen, for the last few years secretary and sales manager, to the position of vice-president and sales manager.

Arco Co., Cleveland, Ohio, has appointed L. O. Pulliam as traveling representative to cover the lower part of North Carolina and all of South Carolina. He will make his headquarters at Gastonia, N. C.

Fabreeka Belting Co., Boston, has changed its name to Fabreeka Products Co. Offices have been moved to larger quarters at 77 Franklin St.

W. H. & F. Jordan, Jr., Mfg. Co., Philadelphia, announces that W. A. Stringfellow has joined the organization in a sales and technical-service capacity. Mr. Stringfellow was formerly chief chemist of the Ankokah Mills, Mt. Holly, N. J.

James Talcott, Inc., New York, has announced the consummation of arrangements with **Barnard, Phillips Factors, Inc.** The latter organization will continue to operate as a separate unit. James Talcott, Jr., has been elected vice-president of Barnard, Phillips Factors, while Benjamin Ernstein, president of the latter organization, has been elected a vice-president of the Talcott company.

Lincoln Electric Co., Cleveland, Ohio, announces the appointment of Seth H. Taylor, Jr., as Pacific Coast manager.

United States Stoneware Co. has moved its factory office from Akron, Ohio, where it has been located for the last 69 years, to Tallmadge, Ohio.

Combustion Engineering Co., Inc., has announced that William Lloyd and B. J. Cross have again become associated with the company in the engineering department of the New York office.

Slip-Not Belting Corp., Kingsport, Tenn., has appointed Thomas H. Wall as representative for Virginia and part of North Carolina. Mr. Wall was formerly associated with C. A. Burgess, Greenville, S. C., manufacturers' agent, covering Georgia and Alabama.

Textile Chemical Products Co., Greensboro, N. C., has recently expanded its manufacturing facilities and sales organization. W. L. Gaffney has been placed in charge of the soap department; Joe Foil will devote his time to sales of sizing compounds; and textile oils will be handled by Thomas A. Mott, Jr. The company has been appointed distributor to the textile trade for the line of gelatins of the Eastman Gelatin Corp., and has also been appointed to represent General Naval Stores Co., on its pine oils. In addition, the company has opened a sales office in New York at 415 W. 28th St., in charge of C. H. Harris.

General Refractories Co., Philadelphia, has appointed John C. Hopkins as district sales manager of the Cleveland office. He was formerly associated with the Central furnace division of the American Steel & Wire Co., Cleveland.

Greenville (S.C.) Textile Machine Co. will make improvements to its plant at a cost of approximately $10,000.

B. P. Ducas Co., Inc., chemicals, has moved its New York office to 551 Fifth Ave.

Stephens-Adamson Mfg. Co., conveyor manufacturers, Aurora, Ill., has re-opened sales-engineering offices at Pittsburgh, Pa., and Huntington, W. Va.

J. D. Lutes has been appointed southern sales manager of Eclipse Textile Devices Co., Elmira, N. Y., with headquarters in Charlotte, N. C.

Lukenweld Inc., division of Lukens Steel Co., Coatesville, Pa., has elected Everett Chapman vice-president.

W. S. Barstow & Co., Reading, Pa., has changed its name to **E. M. Gilbert Engineering Co.** The policies of the concern, which handles engineering, construction and management, remain the same.

Ambler Asbestos Shingle & Sheathing Co. and **Keasby & Mattison Co.**, both of Ambler, Pa., have merged. A controlling interest in the latter has been acquired by **Turner & Newall, Ltd.**, of Great Britain. The name **Keasby & Mattison Co.** will be used.

TEXTILE WORLD'S

Cotton Digest

DESPITE all the hullabaloo that was raised over the cotton textile curtailment plan, and despite the names that the Cotton Textile Code Authority was called by editors on both sides of the political fence, we regard the Authority's presentation of that plan as another demonstration of its fitness to lead its industry.

Its brief to the NRA was a sound factual document. Statistics were offered, not oratory. Sales, shipments, unfilled orders, and stocks were analyzed; an inescapable conclusion was presented.

That is the type of job that code authorities must perform if they are to execute the responsibility, and seize the opportunity, inherent in the recovery program. It is the kind of job that has earned for the cotton group recognition as the outstanding medium of self-government in American industry.

Knowledge of that reputation is an effective antidote to destructive criticism.—*Editor.*

NRA Authorizes 25% Curtailment

The National Recovery Administration, on May 22, authorized the cotton textile industry, with certain exceptions, to curtail production 25% for twelve weeks, beginning June 4. Curtailment is to be staggered "by reducing hours or days in each week and not by shutdowns of one or more weeks."

Complete exemption is given one-shift mills and provision is made for fulltime work on the following: tire yarns or fabrics for rubber tires, tobacco cloths, woven cotton blankets, upholstery and drapery fabrics, jacquard woven bedspreads, merino yarns, narrow fabrics made on multiple-shuttle or fly-shuttle looms, paper-dryer felt, millinery foundation cloths, velveteens, clip-spot marquisettes and cotton damask. Partial exemption was arranged for looms and spindles in small mills.

The rayon weaving industry "owing to anticipated seasonal improvement in demand" is given four weeks curtailment on dress goods and eight weeks curtailment on staples.

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General Johnson Says, "No, No, Chicopee!"

National Recovery Administrator Hugh S. Johnson denied Chicopee Mfg. Co. (Johnson & Johnson subsidiary) of Massachusetts and Georgia, the application for modification of the cotton-textile code to permit operation of productive machinery four 6-hr. shifts per day, or 144 hr. per week.

Assistant Administrator R. W. Lea, on whose recommendation the action was taken, informed General Johnson that adoption of the proposed modification would adversely affect some 600 smaller enterprises, and that the balance of the industry is solid in opposing the Chicopee proposal.

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Cotton Rug Duties Increased

By Presidential order, tariff duties on cotton rugs have been increased by assessment of the following fees in addition to the duties provided by existing law in each case:

(1) on chenille rugs, wholly or in chief value of cotton, 15c. per sq.yd. (2) On imitation oriental rugs, wholly or in chief value of cotton, 23c. per sq.yd. (3) On rugs, wholly or in chief value of cotton (except grass or rice-straw), other than chenille, imitation oriental, and rag rugs of the type commonly known as hit-and-miss, 20% ad valorem but not less than 5c. per sq.yd.

In addition, it was announced that exporters of cotton rugs from Japan to this country had indicated that they would limit exports of these products to the United States according to a schedule announced by the Tariff Commission.

The President's decision was hailed by George A. Sloan as "heartening to the entire cotton textile industry and to all other industries cooperating with the NRA."

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Cotton Goods Market Sluggish During May

The cotton goods market, except for an early spurt in print cloths sales, opened and continued rather slow throughout the early part of May. Improving conditions, with sales exceeding production, were noted during the middle of the month. Prices jumped ⅛c. on print cloths and broadcloths, but remained quiet on fine goods and sheetings. Toward the latter part of the month, stocks began to pile up and the few previous gains were lost. The month closed fairly steady, despite bullish tendencies in anticipation of planned curtailment and possible labor troubles.

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Yarn Trading Slow

May opened with slow trading in the yarn markets, quotations hovering near the level of last December. Sales picked up during the middle of the month, but prices remained about the same. Before the month ended, consumers began holding up shipments until the effect of the curtailment program became apparent. Throughout the entire month, there was a tendency toward price stabilization.

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Winget Heads Combed Yarn Skinners Assn.

A. K. Winget, Albemarle, N. C., was elected president of the Southern Combed Yarn Spinners Association at a recent meeting, and W. H. Suttenfield, Statesville, N. C., was elected first vice-president. Fred L. Smyre, Gastonia, N. C., was elected to the Planning Committee, succeeding R. Grady Rankin, resigned. Other members of this committee are A. K. Winget, chairman, and Arthur M. Dixon.

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Combed Yarn Spinners Urge Compensatory Tax

A telegram, urging that the cotton processing tax be removed unless the synthetic fiber compensatory tax, permitted under the Agricultural Adjustment Act, is soon imposed as relief from conditions described as "almost intolerable," was sent to Secretary of Agriculture Henry A. Wallace by the Southern Combed Yarn Spinners Association, at a meeting at Gastonia, N. C., May 11.

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Textile Brokers Meet

Textile Brokers Association, New York, held its annual meeting early in May. George Seidman, president, reviewed the year with particular reference to code activities and the standard sale note. Eugene A. Reilly, A. Uchitelle and E. F. Lowe were elected to the board of governors to succeed those whose terms were expiring.

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Opposes Cost Clause

Robert Amory, president and treasurer of Nashua (N. H.) Mfg. Co., made a strong statement against code provisions prohibiting selling below cost

in an address before the Boston chapter of the National Association of Cost Accountants May 16. Such provisions are unenforceable, he said, and will be subject to much evasion because costs are variable things and not subject to exact determination. "I am glad" he stated "that thus far no such provisions occur in the Cotton Textile Code."

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Candlewick Code Approved

The code for the candlewick bedspread industry has been approved by the NRA. Maximum work-week for employees is fixed at 40 hours and minimum wage at $12 a week except for cleaners and learners for whom it is placed at $9. Although there are not more than 200 plant employees involved, there are between 12,000 and 15,000 home workers in this industry, which is traditional in the mountain homes of the Blue Ridge country.

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Spindle Activity Spurts

Statistics of particular interest to cotton manufacturers, showing April operations and the raw materials situation were:

Spindle activity ....104.5% capacity, or 7,260,010,234 spindle hours
Cotton consumed .....512,703 bales
Cotton imported for consumption 12,269 bales
Cotton exported (excluding linters) 386,594 bales

March figures for comparison:
Spindle activity ....102.9 capacity, or 7,720,217,745 spindle hours
Cotton consumed .....543,690 bales
Cotton imported for consumption 18,665 bales
Cotton exported (excluding linters) 550,104 bales

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Cotton Goods Market News

Profile Cotton Mills, Jacksonville, Ala., has arranged to have its yarn merchandised by Bliss Fabyan & Co., New York. J. L. Blackman, Philadelphia, Pa., and W. P. Hazlewood, Boston, Mass., will continue as Profile Cotton Mills sales representatives, but will be associated with Bliss Fabyan & Co.

Dilling Mills Co., Kings Mountain, N. C., manufacturers of combed yarns, and rayon and acetate dress goods, has appointed Wilson & Bradbury, Inc., 42 Worth St., New York, as sole selling agent. The office at 1450 Broadway, will continue under the direction of John Fox, Jr., as a branch office of Wilson & Bradbury, Inc.

With the return to Philadelphia, on June 1, of R. J. Mathewson, vice-president in charge of sales of the Standard-Coosa-Thatcher Co., Chattanooga, Tenn., as reported in our last issue, the sales department was moved into larger quarters, 804-6 Lafayette Building, Philadelphia. Associated with Mr. Mathewson in the new offices are J. H. Verlenden, chairman of the board, William H. Thatcher, director, C. H. Greene, head of the thread sales division, Earl Dillmore, Wm. M. Hall, and Robert Lewis. Richard C. Thatcher, recently elected president of the company and son of one of the founders of the company, retains his office in Chattanooga.

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Raw Cotton News

The average price of lint cotton at ten spot cotton markets—11.34c. per lb., has been made the base for determining tax rates on cotton under the Bankhead Act, and proclaimed so by Acting Secretary of Agriculture Rexford G. Tugwell.

Counting round as half-bales, 12,664,019 running bales of cotton, equivalent to 13,047,262 bales, of 500 lbs. each, were ginned in 1933, according to May 16 report of the Department of Commerce.

The apparent supply of cotton in the United States on April 1, 1934 was 11,200,000 bales or 1,600,000 bales less than on April 1, 1933.

Copies of a study on long staple cotton, made by the Tariff Commission, with special reference to the effect of duty, are now available at Washington.

New York Cotton Exchange Service reports the world spinners used more cotton during April, 1934 than for that month in any year since 1929. Proportion of American to other cottons was less than in 1933 and 1932 but greater than in 1931 and 1930.

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Cotton Mill News

Profile Cotton Mill, Jacksonville, Ala., has started up after adjusting the differences between stockholders and bondholders. Paul A. Redmond has been elected president.

Bemis Bros. Bag Co., Talladega, Ala., has let contract to Batson-Cooke Co., West Point, Ga., for construction of a cotton warehouse of four sections 50x100 ft. each to be completed Aug. 1 at cost of $21,000.

Capps Cotton Mills, Toccoa, Ga., has been sold by L. A. Capps to C. D. Goodroe and George Beveridge, of Atlanta, for $25,000. The mill manufactures yarns.

Firestone Mills, Fall River, and New Bedford, Mass., has made a 7½% increase in wages.

Tupelo (Miss.) Cotton Mills have purchased 12 new speeders which are being installed. Other new machinery has been installed to replace old machinery. Included in this were 60 new Model E Draper looms and 13 Saco-Lowell cards. A new 15-year bonded roof has been put on the entire mill. They are erecting 25 new houses for operatives.

William Wright Bias Tape & Braid Co., Orange, N. J., has removed its machinery to West Warren, Mass., where the new weave room of the idle Thorndike Mills has been obtained. When operations begin at the new location, 150 will be employed.

Piedmont Mills, Bessemer City, N. C., has been incorporated with capital stock of 2,000 shares, 500 common and 1,500 preferred. Thirty shares were subscribed by Frank Goldberg, Robert Goldberg and Max Goldberg, all of Bessemer City.

Catawba Spinning Co., Gastonia, N. C., in receivership, has had its equipment sold to F. C. Todd, Inc., machinery dealer, Gastonia.

Greensboro (N. C.) **Weaving Co.** has completed construction of new one-story mill, and will equip with about 400 looms and auxiliary equipment. Plant is estimated to cost $70,000, with machinery.

Smithfield Spinners, Inc., Greenville, N. C., has been incorporated for $100,000. Incorporators are: M. R. Long, Mrs. Alice G. Long and Mrs. V. C. Baker. Mr. Long is treasurer of the Greenville (N. C.) Cotton Mills.

Wovencraft, Inc., woven cotton labels, formerly of Marlboro, N.H., will occupy Mill No. 4 of former Bigelow-Sanford plant at Clinton, Mass.

Springs Cotton Mills, Eureka plant, Chester, S. C., has completed the construction of a new warehouse adjoining the cloth department.

Pacific Mills' Columbia (S. C.) plant is replacing several hundred old looms with new Draper Model X looms.

Miller Thread Co., Bristol, Tenn., recently incorporated for $50,000, has purchased the plant of Mutual Thread Co. equipped to produce all types of sewing thread. D. T. Miller is president and treasurer, and J. E. Williams, general manager. J. E. Reynolds & Co., New York, will be eastern sales representatives. Other territory will be handled from Bristol.

Wabassa Cotton Co., Ltd., Three Rivers, Que., plans early construction of new one-story mill addition, to be used primarily for storage and distributing service, estimated to cost $35,000.

TEXTILE WORLD'S

Wool Digest

THE woolen and worsted industry, in its attempts at self-goverment under NRA, has experienced particular difficulty with two problems: (1) limitation of production; (2) preservation of equitable wage differentials.

The fundamental problem underlying both of these, however, has been the knotty question as to how to develop sufficient centralization of authority and at the same time secure majority support of that authority so that its dicta might be enforceable. Such a balance is difficult to attain in any indusry; it is extremely so in one which has had the tribulations in cooperation that have marked the wool industry's past.

We have had occasion in these columns to criticize what we regarded as the failure of the Wool Textile Code Authority to assume its prerogatives of authority. As we go to press, however, we understand that certain constructive moves are in the making which offer at least the opportunity for solution of the two specific problems mentioned above, as well as the fundamental trouble underlying both.

As one vitally interested in the progress of the cooperative movement in wool manufacture, we hope that the industry at large will support the new moves. Also, if the Code Authority proves by the outcome of these acts that its method of "peaceful penetration" was the most effective one to choose, we shall be happy to apologize for our past impatience.—*Editor.*

For Better Control

As we go to press, the limitations committee of the National Association of Wool Manufacturers has just issued a questionnaire asking the industry's opinion on (1) a two weeks' vacation period June 25 to July 9, (2) single 40-hour shift limitation for machinery now allowed two such shifts, (3) vesting Code Authority with authority to grant exemptions from single-shift limitation. Purpose of the action is preparation of a production-control program.

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It's Easy to Criticize the Rules

Trading in wool goods, both men's and women's wear, has been sluggish, and the recently adopted trade practice rules are getting a good share of the blame.

As an example of current difficulties might be cited that of the flannel manufacturers, who have usually taken orders at this time of year on an "at value" basis. This practice was ruled against in the code supplement and the flannel makers got together early in June to see whether some special dispensation might not be meted out to them so that operations might go forward in the usual way. Apparently if prices must be named now, buyers will prefer to wait before covering their needs and mills in turn will sit without orders for flannels on their books.

Prohibition against sale of stock goods at any other than code discount terms means that mills are carrying more stocks than they would like to at present. Buyers would pick up lots here and there for salting down for next year's light weight season but they cannot commit themselves to pay for these goods six months or more before they will have the chance to turn them over.

The market reports less trouble with signed copies of orders than it anticipated. Critical ones, however, argue that there haven't been such a lot of orders to sign since the rules went into effect May 7.

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Tropicals Close Season in Firm Position

Tropicals have been the bright spot of the month. They were conservatively manufactured and are closing their season without surplus. In some sections of the country there has been more competition than usual from cotton and linen summer suitings, but this seems to have been anticipated, and worsteds and mixtures were turned out with an accurate eye on what the market would absorb.

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Stevens Acquires Hockanum Mills Co.

M. T. Stevens & Sons Co., North Andover, Mass., already controlling seven woolen and worsted mills in New England, has purchased the Hockanum Mills Co., Rockville, Conn., a holding company for five mills located in Rockville. Details of the purchase price are not available, but the transfer is the largest that has taken place in the industry since the American Woolen Co. was put together.

M. T. Stevens & Sons Co. was established in 1810 by Moses T. Stevens and incorporated in 1902, present capitalization being $5,000,000 authorized, with $4,002,000 paid in. Hockanum Mills Co. was established in 1809 by the Maxwell and Sykes families and is currently capitalized at $6,000,000. Both mill groups have been controlled by descendants of the original founders. It is understood that the Hockanum properties will be operated as a separate unit, no changes being contemplated in management or selling arrangements. According to recent directories the Hockanum group operates 31 cards, 20,360 spindles, 428 looms and employs 1,375.

Edwin Farnham Greene, New York, carried out the negotiations leading to the transfer of ownership of Hockanum to the Stevens firm.

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What's "Angora"?

Unfair competition in the sale of yarn is charged by the Federal Trade Commission in a formal complaint issued May 18 against Joseph Benn Corp., yarn manufacturer, Greystone, R. I. According to the complaint, the Benn company sold as Angora yarn a mohair yarn not made of the hair or wool of the Angora rabbit, but of goat hair or wool, which is quite different in character from the rabbit product. Since mohair is the product of the Angora goat there is a duplication of terms which might well be better defined. There is even the Angora cat which might some day come into the picture.

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Efforts to Revive Confidence in Wool Prices

The wool market enters June short of business though on the whole some gain in confidence is noticeable. The stand taken by the Wool and Mohair Advisory Committee against any lowering of prices is regarded in some quarters as good policy at the moment, yet quite opportunist in character, reflecting something of a compromise between opposing members within the committee. A real basis for wool it is believed will be worked out when manufacturers feel that the situation has reached a point of settlement justifying

their entrance into the market for wool in volume. The resolution of the committee stressing that there is nothing in the present quietness of the market to justify any change in quoted wool values has engendered some measure of confidence in manufacturing and merchandising circles which has not to date been translated into any increased demand for wool.

Wool growers apparently have more to say about the price of their product than for many years, particularly the large western wool-producing States whence comes the bulk of the clip. The participation of the government in the situation has an important psychological effect.

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Nominations, Food, Feature Overseers Meeting

Signs of better days were in evidence when more than twice the number of members and guests usual in recent years turned out for the 51st semi-annual meeting and shore dinner of the National Association of Woolen and Worsted Overseers, held at Rocky Point, R. I., May 12.

The business meeting, held prior to the dinner, was marked by the announcement of Thomas Buchan, Houghs' Neck, Mass., for many years treasurer of the association, that he would not be a candidate for reelection at the annual meeting to be held in Boston next fall. Thomas Parkin, former president, Methuen, Mass., was nominated in place of Mr. Buchan. In accordance with the usual procedure, the nominating committee moved up the officers one position, making the slate: president, John J. Fanning, Baltic, Conn.; first vice-president, John C. Marley, Lawrence; second vice-president, H. E. Fulton, Sanford, Me. Nominations from the floor for third vice-president were: C. L. Cutler, Fred Graichen, J. P. Gaudet, T. F. Loftus and B. J. Riley.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	March	April
Total clean equiv. (excluding carpet)	12,827,000	10,354,000
Carpet wool (grease)	8,330,000	7,377,000
Activity machinery:		
Looms (50" and wider)	81.0%	69.4%
Carpet looms	52.7%	49.5%
Combs	74.6%	56.7%
Worsted spindles	53.3%	48.5%
Woolen spindles	94.4%	92.6%

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Wool Consumption Smallest in Ten Years

Domestic mill consumption of combing and clothing wool on a grease basis in the first quarter of this year was slightly smaller than in the same period last year and the smallest in any corresponding quarter in the last ten years, says the Bureau of Agricultural Economics in its current report on world wool prospects. Consumption of carpet wool was the largest since 1930.

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Wool Goods Market News

Because of current dullness and hoped for resumption of business in August or slightly earlier selling houses are favoring early vacations so that full staffs may be on hand when needed.

General Johnson has ordered a stay until July 30 of that provision of the trade practice rules which specifies that all yarn shipments exceeding 100 lb. shall be billed on a moisture regain basis of 15% for French spun and 13% for Bradford spun and merino.

Charles Noonan and R. A. C. Scott have joined in establishing a selling agency for woolens, worsteds and cottons under the name, Nooscotia Fabrics, at 1441 Broadway, New York. Mr. Noonan has been in the selling game for 30 years, and Mr. Scott has had 20 years experience in cloth construction and manufacture. The latter is also a contributor of technical features to TEXTILE WORLD.

The National Association of Wool Manufacturers will begin to issue quarterly reports of raw wool held by manufacturers commencing with June 30. The National Wool Trade Association will perform the same service in the field of dealers. This resumes a Census Bureau service discontinued several years ago.

The Publicity Committee of the N.A.W.M., Col. C. F. H. Johnson, chairman, has been holding a series of meetings recently. Several general plans have been under consideration for presentation to the directors of the Association. The National Wool Trade Association has appropriated funds for promotion.

During the debate in the Senate on the bill to accord tariff adjustment rights to the President in connection with reciprocal trade agreements, Senator Harrison read a letter from Secretary of State Hull in which it was restated that no action regarding wool is contemplated.

National Association of Wool Manufacturers has issued Vol. LXIII of its Bulletin which comprises full coverage of the Code and trade practice rules of the industry and a mass of statistical data.

Waterman Currier & Co. have become selling agents for Limerick (Me.) Mills which specialize on spun rayon yarns, worsted, mohair, camel's hair, etc.

American Woolen Co. has voted a $1.25 dividend on its preferred stock, the second this year.

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Wool Mill News

Haddam Woolen Co., Moodus, Conn., suffered loss of about $15,000 when fire destroyed a part of its mill and a quantity of stocks on May 4.

Davis Mill, Quaddick, Conn., a shoddy plant owned by Fred Davis, was destroyed by fire May 13 with reported $50,000 loss.

Riverside Woolen Co., Thompson, Conn., recently organized by Arthur Kruck, and William E. Backus, both of Mystic, Conn., is said to have concluded arrangements to take over a building at Quinebaug, Conn., and will remodel and equip for new mill.

John T. Lodge & Co., Inc., Boston, Mass., processed wool, garnetted stock, etc., has taken over former plant of the Aetna Mills, Watertown, Mass., comprising four main mill units, idle for some time. Buildings will be remodeled. Entire program will cost over $75,000.

James Lees & Sons Co., Bridgeport, Pa., has completed plans for alterations and improvements in mill, and will proceed with work. Ballinger Co., Philadelphia, Pa., is architect and engineer.

Pennsylvania Carpet Co., Philadelphia, Pa. The 8-story plant of this bankrupt concern has been conveyed by Irving Trust Co., as trustee, to J. A. McKee subject to $1,340,000 mortgages.

Perseverance Worsted Co. property at Woonsocket, R. I., comprising land and two main buildings was sold at auction May 24 to Joseph O. LeFrancois for $4,600.

Uxbridge Worsted Co.'s Glenark mill at Woonsocket, R. I., has lately installed 15 Whitin large-package spinning frames.

Jefferson Woolen Mills, Knoxville, Tenn., are completing construction of a two-story mill unit, 60x132 ft. It will represent an investment of about $25,000 with equipment. Second floor will house new spinning to balance with present weaving equipment.

Saxtons River Woolen Mills, Bellows Falls, Vt., have been sold to Arthur LeCroix, following several years' idleness.

Virginia State Penitentiary, Richmond, Va., has started one loom in the woolen mill equipment recently installed. Five other looms will soon be started. Blankets for State institutions are produced.

Chippewa Woolen Mills Co., Chippewa Falls, Wis., is completing repairs and improvements in mill, following recent damage through flood, for which general contract was let to Tschopp, Durch & Camastral Co., Chippewa Falls.

TEXTILE WORLD'S

Rayon Digest

GRADUALLY, the price situation in synthetic fibers has become stabilized. There was a interim, however, of harmful instability: harmful to the interests of both yarn producers and yarn consumers.

Out of this situation, we hope, certain lessons have been learned. One is that differentials between knitting and weaving yarns cannot be maintained equitably. Again, disparity among prices of the various producers tends to paralyze the whole market.

The fundamental lesson, however, is one that has been learned again and again in the past, but which, apparently, must be relearned periodically—one which, incidentally, we have emphasized repeatedly, at the risk of monotony, in these columns: Price stability is one of the greatest inherent assets of the synthetic fiber industry; such stability must be maintained to the maximum degree compatible with the progress of the producers and the interests of consumers.

It is apparent, of course, that this fine balance must occasionally be upset, and that temporary periods of instability must recur. The more the frequency and duration of such interruptions are curtailed, however, the better for all concerned.—*Editor.*

Sift Rayon Monopoly Charge

Public inquiry by the Federal Trade Commission into charges that ten rayon producing companies had engaged in "monopolistic practices," began in New York on May 28, and continued intermittently through the first week of June. Edward L. Smith was attorney for the Commission and John W. Addison was trial examiner. Interest centered on the testimony of Samuel A. Salvage, president of the Viscose Co. of America, who was on the stand through two days of strenuous examination. The chief points of Mr. Salvage's testimony were first, his explanation of a series of cables sent to the firm's parent company, Courtaulds Ltd., London, and, second, his description of various conferences held with other American producers during 1931 and 1932 which was within the period of the alleged monopolistic practices.

The cables, which were introduced as evidence, covered the entire year of 1931, and gave a detailed picture of the controversy between the Viscose Co. and the Arcadia Knitting Mills, over the yarn producing company's refusal to continue the 5% discount. Mr. Smith sought to prove that references in the cables to "arrangements with other producers" and "constructive matters arranged between producers," meant price-fixing. However, Mr. Salvage denied this emphatically, maintaining that it was simply a statement of his opposition to entering the knitting industry. Mr. Salvage explained how he sought to have Arcadia raise its fabric prices to prevent further deterioration of quality which, he said, was pulling the rayon industry "down to the gutter."

Describing a meeting with other yarn producers at the Union Club, New York, in October, 1931, Mr. Salvage said the chief topics discussed were the misbranding of rayon yarn and the capacity and production of the industry. He asserted that prices were not discussed, but that he thought he made known a reduction in his own price of fine deniers and elimination of misbranded yarn by his company. The witness held firmly to this contention under persistent examination.

Mr. Salvage said that his company's sales in pounds were approximately as follows: 1929, 60,000,000; 1930, 45,000,000; 1931, 61,000,000; 1932, 56,000,000.

Rufus W. Scott, chairman of the executive committee of the Tubize Chatillon Corp., who took the stand June 5, was the major witness of the hearings, due to the fact that, since 1931 when figures were first collected his office has served as the clearing-house to which producers submitted production and consumption data. He said he undertook the service because at that time the industry was very disorganized and that data both on rayon and on its relation to competing fibers was needed to permit producers to operate intelligently. The witness said he attended many meetings at which figures submitted by the various companies were discussed, and added that everybody thought they were being "gypped." He characterized the practice of selling standard yarn at inferior yarn prices as "pernicious price-cutting," which practically the whole industry indulged in. The main aim in cellecting data he said was to protect the industry against buyers who spread false reports about prices.

Continuing his testimony June 6, Mr. Scott said the data assembled was the same as is gathered in all other raw textile divisions. He denied prices ever were discussed at producers' meetings and specifically denied he ever agreed not to sell below a given figure. He said he did not believe Tubize sold yarn to such of its competitors in the knitted fabric field as Arcadia Mills, Beaunit Mills or Algro Mills and he characterized Arcadia as "a healthy competitor."

Other companies represented at the hearings were: DuPont Rayon Co., American Enka Corp., Tubize Chatillon Corp., North American Rayon Corp., The Belamose Corp., Delaware Rayon Co., Industrial Rayon Corp., Skenandoa Rayon Corp., Acme Rayon Corp., and Price Waterhouse & Co. I. Reinhard and D. Reinhard of Arcadia Knitting Mills also were present.

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Prices Readjusted On Wide Front

After several weeks of dissatisfaction among customers, chiefly weavers, due to the differential between prices of weaving and knitting viscose process yarns, definite steps were taken by producers to adjust the situation. The month of May indeed brought forth a rapid sequence of price revisions, including a reduction of 10c. per lb. on all viscose yarns, putting these on par with levels previously established by the Industrial Rayon Co.

The new price list of the American Bemberg Corp. follows:

Den.	Fil.	Unconverted Price	Den.	Fil.-	Unconverted Price
40	30	$1.20	120	90	$ .70
50	36	1.10	150	112	.65
65	45	1.00	180/200	135	.60
75	60	.95	240/250	180	.60
100	75	.80	300	224	.55

The new price list of the Viscose Co. follows:

Denier & Filament	1st Quality Skeins	2d Quality Skeins	1st Quality Cones
50/14	$1.15	$1.10	$1.20
75/30	.90	.87	.95
100/40	.75	.72	.80
100/60	.80	.77	.85
125/36	.62	.60	.65
150/24-40	.55	.53	.55
150/60	.60	.58	.60
200/30	.51	.49	.51
200/75	.56	.54	.56
300/44 & heavier	.45	.43	.45

The new price list of Celanese Corp. of America follows:

Den.	Fil.	Spools and Cones	Den.	Fil.	Spools and Cones
45	13	$1.20	120	40	$ .80
55	13	1.15	150	40	.75
65	20	1.10	170	40	.75
75	20	1.00	200	52	.75
100	40	.99	300	80	.75

Fabric Surplus Cuts Yarn Sales

Rayon sales registered a sharp decline through the major part of May, this being due to the overproduction existing in broadsilk and cotton fabric mills, and also to the uncertainty that had prevailed regarding prices. Knitting and weaving yarns alike suffered in the recession, though the larger companies reported that such limited orders as they got came largely from weavers. The decline had not lasted long enough to pile up yarn stocks, and at the time of the new price adjustment, producers still had very moderate supplies of yarn on hand.

Some improvement in demand showed itself after the revision of quotations and fair activity was expected for some weeks this month. It was not expected however that the market would register any real pick-up before August, due to the proximity of the normal midsummer slackening.

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World Output Gains

Steady expansion in rayon output throughout the world is revealed in an estimate of production during the first quarter of the year, received from our Manchester (Eng.) correspondent. According to this, output during the first three months amounted to 187,600,000 lb. compared with 181,300,000 lb. in the final quarter of 1933. United States production in the first quarter is estimated at 55,000,000 lb. compared with 54,600,000 lb. in the previous quarter. Japan, Italy, France, Germany and Holland all increased production and Britain remain unchanged at 24,200,000 lb. Japanese output during the period rose to 28,700,000 lb. compared with 26,400,000 lb.

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DuPont Raises Wages 8%

A wage raise averaging 8% and affecting 4,000 workers became effective in the middle of May at the Old Hickory, Tenn., plant of the DuPont Rayon Corp. The increase brings wages at this plant to a level with those at other DuPont plants where wages were previously advanced.

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Viscose Co. Plants Resume Operation

Doubt that the Marcus Hook and Lewistown, Pa., plants of the Viscose Co., which were closed for two weeks by a strike, would be in normal operation before the middle of June, was expressed in semi-official quarters at the end of May. It was understood that the company started making viscose solution at Lewistown the third week of May, and that spinning machines did not start operating until some time later. At the end of the month some yarn was delivered to customers.

The strike, which had been called by the United Textile Workers of America was terminated at the beginning of May through intercession of the Philadelphia Regional Labor Board. Due to the slow process of resuming operations, workers were being rehired gradually. Plans for further rehiring were discussed and the labor situation as a whole was reviewed at a meeting of the Viscose Co. management with the negotiation committee of Rayon Local 1851. This meeting was held May 15 at Lewistown; details of the session were not disclosed.

It was reported May 22, that at a union meeting in Lewistown the day previous, Nathan W. Shefferman, member of the National Labor Board at Washington, had severely rebuked the union for calling an "unauthorized strike" and had characterized the walkout as "a big mistake."

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Rayon-Silk Body Made Permanent

Prospects of a closer understanding between rayon weavers and their fellow-manufacturers in the silk fabric division, loomed brighter last month following the preliminary meetings of the joint committee representing both branches. This committee, which will serve as a clearing-house for all questions affecting the mutual interests of both groups, is understood to have been established on a permanent basis. Among the questions which the body will consider are terms, production, and labor problems, and effort will be made to reconcile the rayon weavers and broadsilk mills on these points. The committee is sponsored jointly by the National Rayon Weavers Association and the National Federation of Textiles, Inc., and includes four members from each of these organizations.

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Rayon Industry Briefs

The Belamose Corp., Rocky Hill, Conn., announced May 17 that the plant would close that day for an indefinite period, due to lack of orders. The closing, which was due largely to the curtailment of production in silk and rayon mills, rendered 600 employes idle.

Contributions totalling more than $2,000 have been made by rayon and synthetic yarn producing companies to a fund for the Philadelphia Textile School, of which many important rayon industry executives are graduates.

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Rayon Mill News

American Glanzstoff Corp., New York, N. Y., with rayon mill at Elizabethton, Tenn., is now operating under its newly established name as the North American Rayon Corp.

DuPont Rayon Co., New York, N. Y., has work under way on a housing development for mill employes at plant at Old Hickory, Tenn. About 160 dwellings are now in course of construction, designed to accommodate 200 families. A new mill unit was recently placed in service at the local plant, with considerable increase in working forces.

Associated Rayon Corp. reported a net loss for 1933 of $75,061. Directors and officers were reelected at the annual meeting held in Baltimore, Md., May 15.

American Enka Corp., Enka, N. C., has added about 200 employes during May since operation in the large plant addition was begun, totaling about 2,600 workers. Production increase is considerable due to improved machinery installed in the addition and replacements made in the older plant. American Enka Corp. reports net profit for 1933 of $1,062,620 compared with net loss of $202,178 for 1932. These profits about cover accumulated losses of last four years. The first dividend was paid on the company's stock April 2.

Tubize Chatillon Corp. reports earnings for first quarter of 1934 of $236,363 against $35,000 for the similar period of 1933. The recent bobbin denitration installation at the Hopewell, Va., plant is said to have resulted in material economy; also a new spinning method at the Rome, Ga., plant has increased capacity. While the Rome acetate plant is shut down certain research is under way which, if successful may result in reopening the plant on a more profitable basis.

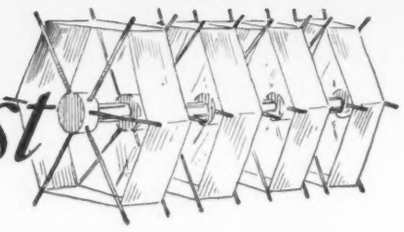
Viscose Co. of America, Inc., Marcus Hook, Pa., has plans under way for new one-story addition, 50x130 ft., designed primarily for laboratory service. It will cost over $25,000, with equipment. Ballinger Co., Philadelphia, Pa., is architect and engineer.

Courtaulds (Canada) **Ltd.,** Cornwall, Ont., has been enlarged from previous set-up of 53 spinning machines to 105. Installation of machinery and the completion of new building is proceeding. Sales offices of the company in Toronto have been moved to 159 Bay Street.

Canadian Cottons, Ltd., has remodeled its Milltown, N. B., plant until it is now running largely on rayon fabrics.

TEXTILE WORLD'S

Silk Digest



THE importance of the International Conference on Raw Silk, tentatively scheduled to be held in New York next fall, cannot be over-emphasized. Complaints against the quality of raw silk, lodged particularly by hosiery manufacturers, must be met if this fiber is to hold its position as one of the major textile materials.

Obviously, the first step is the development of tests fair to all concerned. That is to be one of the primary purposes of the forthcoming conference.

Incidentally, we feel that the National Association of Hosiery Manufacturers made a significant contribution to general understanding of recent developments in silk testing through the excellent exhibit it staged at the Philadelphia show this spring.

This problem is not one of antagonism between buyer and seller. It calls for harmonious cooperation in order that the interests of both may be advanced. The spirit in which the conference was initiated seemed to assure such cooperation; it is to be hoped that self-interest will not be allowed to interfere. —*Editor.*

Surplus Shrinks After Shutdown

Overproduction in the silk textile industry was reduced by approximately 7,500,000 yd., as result of the shutdown of all mills, May 14 to 21, it was stated by Peter Van Horn, chairman of the Silk Textile Code Authority, following resumption of operations. Mr. Van Horn declared the closing to have been 100% successful. He added that it had a healthy psychological effect on the market, and served both to stimulate demand and to strengthen prices.

"It has also given proof," he said, "that silk manufacturers are conscious of the value of united action, once they realize the necessity of watching production to protect themselves against the seasonal let-down in buying."

Other points noted by the chairman regarding the shutdown were: It provided the Code Authority with machinery for future enforcement of its orders; the entire industry was visited by a volunteer organization of field agents to insure compliance; slight difficulties arose due to misunderstanding, but these were promptly cleared up: labor leaders originally protested against the step, but Mr. Van Horn asserted the shutdown would help workers by raising the total of wages for the month of May as a whole. It was estimated that the shutdown affected 30,000 workers

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Defer Throwing Hearings

Various applications for exemptions from the machinery restriction and other provisions of the throwing industry code remained in abeyance at the opening of June. The rayon weavers had applied for exemption from the throwing code insofar as it affected their throwing of rayon or other synthetic yarns for their own use, and a hearing was set for May 24 in Washington. Subsequently this hearing was indefinitely postponed, and it was understood that informal efforts were being made by the weavers and throwsters to reach a mutual understanding. The hearing on the application filed by the Allen-A Co. to permit installation of throwing equipment for their own use, also was postponed to June 20.

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Gerli Rebukes Rayon "Hobgoblins"

Declaring that "any talk about silk hurting rayon was based on unsound thinking," Paolino Gerli, president of the Internation Silk Guild, Inc., asserted May 16, that, on the contrary, silk "has been an incentive to the progress of rayon and a pacemaker for it." Mr. Gerli's statement excited much interest both in the silk and rayon divisions, and was viewed by some factors as one of the frankest comments on the rivalry of the fibers to be made by a silk industry leader in many months. Deploring the tendency to stress the competitive aspect which he termed "undignified and ridiculous" he said that certain rayon factors were "imagining all sorts of deviltry and conjuring up hobgoblins out of nothing." He claimed that silk's influence on rayon had been constructive since it supplies "something to emulate, lacking which most likely rayon would not have made the strides it has made."

In conclusion, Mr. Gerli summed up the outlook for all textile fibers as follows:

"Fashion being what it is, each will have its place in the sun at certain times, and in the final analysis this is the answer to the individual position of each of the fibers."

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Design Piracy Law Faces Legal Test

The movement to eliminate design piracy in textiles was given significant impetus on two directions during May. On one hand, steps were taken by cotton converters and printers to secure the protection benefits now afforded the broadsilk division through the Textile Design Registration Bureau of the National Federation of Textiles, Inc., and there were indications this might result in making the service available to all textile branches. On the other hand, a test case involving criminal prosecution of a manufacturer for alleged violation of the piracy provision of the Silk Textile Code, is now in process, according to an announcement by Peter Van Horn, chairman of the Code Authority.

Leaders in the fight against illegal copying of designs regarded both developments as of especial importance. A delegation of cotton converters and printers made their request at a meeting with representatives of the Design Bureau. Robert Schey, chairman of the Bureau Committee, endorsed the proposal as likely to "add much to our campaign against piracy." The test case came to light when Mr. Van Horn was advised by the Public Relations Department of the NRA at Washington that a New York firm had violated the code and that the case would be referred to the local District Attorney. It was charged that the manufacturer caused to be printed a design which had not been registered as the code requires, and that the fabric was similar in design to one already registered. The manufacturer claimed the similarity was unintentional and that he usually had all his designs registered by the printer who, however, failed to carry out that arrangement in the present instance.

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All-Silk Fabrics Active For Fall

Market estimates of the advantages of the mid-May shutdown of broadsilk mills as voiced at the end of the month, were that it had definitely helped price tone and brought more orders. However, numerous merchandising executives contended that the shutdown had not lasted long enough, and that the surplus condition of the industry was only partially remedied by this move.

Sampling of fall fabrics was general in the New York houses when June opened, with interest divided between heavy satins and various novelty cantons. Rough surfaces were important,

especially pebbled effects. Buyers showed unusual activity and mills look for spirited buying toward the end of this month. Summer lines have been largely cleared, so far as the higher-priced fabrics are concerned. There appeared to be a quantity of distress merchandise available at the end of May, but generally speaking it was not most desirable either as regards construction or design.

Sales executives look for a good fall in all-silk fabrics, especially those in the $1.15 to $2.25 range. The interest in pure-dyes has increased rapidly in recent months and mills have expanded their activity at that end.

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Silk Textile Deliveries 10% Off

A decline of 10% in the quantity of silk textile fabrics delivered during the first half of May against the second half of April is shown in figures made public May 23 by the Silk Textile Code Authority. The statistics are based on preliminary reports from 240 firms owning approximately 53,000 looms. The figures show a rise in undelivered orders, which is attributed to a desire to stock up in anticipation of the shutdown of the mills. Stocks moved in the same period were 30% below the equivalent period in 1933. Key index figures for stock-carrying mills owning 41,960 looms follow:

	Period Totals			Per Cent Change	
	This Period	Last Period	Year Ago	Last Period	Year Ago
Net Sales-Shipments Total	178.6	205.4	243.7	—13.0	—26.7
Production	148.7	163.5	212.3	— 9.1	—30.0
Undelivered Orders	246.0	222.9	.....	+10.4	.....

Following are raw silk statistics announced by the National Federation of Textiles, Inc., on June 5 for the month of May:

	Figures in Bales
In storage May 1	61,083
Imports during May	38,717
Total available during May	99,800
In storage June 1	61,060
Approximate deliveries during May	38,740

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Steady Silk Prices Cheer Importers

The end of May found the raw silk market in considerably better mood, thanks to prices having held their own for nearly a month. While consumption in May was less, due to mill shutdowns, futures were quite active and importers reported some confident coverage for late summer and early fall months. Prices varied considerably during the month, but within a narrow range. The quotation on Crack Double Extra 13/15 78% was $1.32½ at the end of April and in mid-May the price advanced to $1.35, falling back to its original level some ten days later.

Hosiery mills placed good-sized orders during the month which helped somewhat to offset the effect of the broadsilk curtailment. One leading Japanese house estimated that consumption of raw silk by hosiery mills was now equal to half of that consumed by the broadsilk division, this change of ratio being due largely to rayon competition. The quality of silk imported has improved to a moderate degree in recent weeks, importers assert, and complaints are less frequent.

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Form Color Bureau

Distribution of advance information on color trends as indicated in leading centers such as Paris and New York, is the function of a new bureau, known as the Color Fashion Bureau, which has been formed by the Onondaga Silk Co., of New York. Announcement to this effect was made by Philip A. Vogelman, director of the bureau in a letter which accompanied the bureau's first bulletin. The bulletin stated that green would be the leading fall color. Mr. Vogelman stated added that bright colors would predominate "due to the feeling that social life will be elaborate this winter, with luxury the apparel keynote."

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Throwsters Make Profit!

Application of the open price provision of the throwing industry code has resulted in advancing prices to the point where throwsters no longer take work below cost, it was stated late in May by Dean Hill, secretary of the code administration committee of the industry and secretary of the Throwsters Research Institute Mr. Hill said the industry considered the innovation "an overwhelming success," adding that 132 owners of throwing machinery who filed prices in April have held to the levels specified. The code requires that every throwster file his prices with the administration committee before taking any business.

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Here's the Bill!

Budgets covering costs of code administration in the silk textile and the throwing industries, respectively, have been submitted to the NRA for approval by the Code Authorities of both divisions. The silk textile budget totals $132,298, basis of contribution being: $0.0556 for every $100.00 of net sales. The throwing budget totals $29,000, basis of contribution being: Three-fourths of a cent per spindle inserting twist.

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Silk Industry Briefs

The following comprise the legislative committee of the National Federation of Textiles, Inc., as announced recently by Paul C. Debry, federation president: Horace B. Cheney, Cheney Bros., chairman; Edward F. Addis, Meinhard Greeff & Co.; Raymond G. Buser, R. G. Buser Co.; B. Edmund David, David Silks, Inc.; Nathan Lewis, Kahn & Feldman, Inc.; William Menke, Menke Kaufmann & Co., Inc.; Walter Neale, Duplan Silk Corp.

Peter Van Horn, chairman of the silk textile code authority, together with a party including Paul C. Debry, Samuel Courtauld of London and Lucius D. Tompkins, recently completed a tour of silk mills in Pennsylvania.

The Raw Silk Importers, Inc., was officially accepted on May 25 as a member of The National Federation of Textiles, Inc., successor to the Silk Association of America, Peter Van Horn, executive vice president of the Federation, announced.

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Silk Mill News

Fulton Silk Mills, Inc., Paterson, N. J., have been organized with capital of $125,000, to operate a local broad silk mill. New company is headed by Benjamin and Hyman Markowitz, and is represented by Harry Joelson, 152 Market St., Paterson.

Harris Brothers Silk Co., Paterson, N. J., is completing machinery installation and improvements in a vacant factory at Clifton Forge, Va., to be placed in operation on ribbons in near future. Facilities will be provided for employment of about 60 workers.

Worman Silk Co., Paterson, N. J., Benjamin Licker, receiver, has filed his accounting with the court.

Susquehanna Silk Mills will continue to be operated by the receivers until Sept. 18 according to a court order, pending plan of reorganization.

H. C. Gift Co.'s yarn winding plant near Laureldale, Pa., was destroyed by fire on May 8, as Thomas Gift the proprietor was preparing to start operations.

Strasburg (Va.) Silk Mills, Inc., recently organized, has taken over a local mill property and plans early operation, with about 100 looms in service.

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TEXTILE WORLD'S

Knit Goods Digest

WITHOUT attempting to pass judgment upon the issues involved in the full-fashioned hosiery labor controversy leading up to the resignation of Dr. George W. Taylor from one of his posts as impartial chairman, we nevertheless believe that the loss of his services in that capacity represents a blow to both employers and employees.

We do not recall in textile history another instance where an individual administered the responsibilities of this difficult type of position with such apparently uniform endorsement from both sides. Whenever a representative of this publication has had occasion to investigate any phase of the labor situation in this field, he has invariably reported a practical unanimity of opinion as to Dr. Taylor's fairness and breath of vision.

The disturbing factor in this latest development is the doubt it raises as to the possibility of any man being able to perform uninterruptedly the duties inherent in the job of impartial chairman. As for Dr. Taylor himself, we are confident that his reputation will not be impaired by this incident.—*Editor.*

Taylor Resigns Reading Post

Prospects of continued peace between the open shop full-fashioned hosiery manufacturers in the Reading, Pa., area and the American Federation of Full-fashioned Hosiery Workers, suffered a grave set-back during May, as result of the resignation of Dr. George W. Taylor, as impartial chairman. The industry faced June in a mood of much disquiet, with union leaders asserting that a strike was almost inevitable, and conservative observers admitting that the outlook was bad. The agreement between manufacturers and the Federation expired May 25 and was followed by a period of tension. It was indicated that the union would take no action pending its opportunity either to make a decisive demand for a new agreement, or to issue a strike order.

Dr. Taylor resigned May 20, the specific cause being the refusal of the H. W. Anthony Co., Sinking Spring, Pa., full-fashioned hosiery manufacturers, to accept his ruling that free needles be furnished henceforth to workers. In his letter, the impartial chairman made no direct mention of this incident, but asserted that certain manufacturers had persistently failed to fulfill their pledge to abide by his decision, and had refused to recognize his jurisdiction. The substance of his statement was that the manufacturers in question took an arbitrary attitude and "assumed the sole right to determine or change conditions of employment." He added that the same group of manufacturers have appeared unwilling adequately to discuss fundamental questions.

In a supplementary statement Dr. Taylor explained that his action did not affect the two other posts he holds, one as impartial chairman under the national labor agreement between the Federation and the closed shop mills, and a like post in relation to a group of 20 mills operating independently of the agreement.

It was reported that the Hosiery Code Authority members had personally brought pressure on the Reading mills to avoid the break with Dr. Taylor, feeling that such would put the manufacturers in an unfavorable light. However, Earl Constantine, managing director of the National Association of Hosiery Manufacturers, later stated that the Code Authority was following a strictly "hands-off" policy.

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$5.75 Ruling Aids Branded Lines

Opinion as regards the effectiveness of the Hosiery Code Authority's $5.75 ruling clarified somewhat when the current month opened. With the price minimum mandate about six weeks in effect, the indications were that, while it had benefited branded lines considerably, there was still much bootlegging of merchandise below the specified minimums. Criticism of the Code Authority was voiced freely, but not, it was remarked, among the large branded line companies; chief complaint came from the small units.

Frequent violations of the price minimum were rumored in the market, but Code Authority officials said many of these rumors lacked authenticity. Only a moderate number of real violations have been uncovered, it was said.

Announcement by the NRA June 7 that price-fixing would be eliminated from codes under a new policy was interpreted in authoritative circles as necessitating a complete change in the Hosiery Authority's $5.75 ruling. Sufficient time had not elapsed before going to press, to permit detached appraisal of the effect of the NRA decision, but the general feeling was that hereafter all price and emergency questions would be decided by the NRA itself.

Hosiery movement during May was limited largely to nearby commitments, but this was regarded as natural in view of the uncertain code situation. The most helpful development with respect to market morale was the approval of the cost definitions and principles by Gen. Johnson. It was the one major constructive step of the month, observers pointed out, and they felt that it had imparted considerable confidence.

Sentiment in favor of a mid-summer curtailment appeared to be growing.

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Mid-West Knitters Tee Off

The Chicago Yarn Men's Circle will hold its 13th annual golf tournament at the Knollwood Club, Lake Forest, Ill., June 26. This annual event is always anticipated by the hosiery and underwear knitters in the Mid-West district. The Circle, in its 13th year of existence, is composed of the following 13 members: M. Arnold Henderson, president; C. M. Patterson, treasurer; C. Walter Seidel, secretary; Wm. D. Benson, O. J. Caron, A. H. Emerson, Frank Kingsley, Wm. J. Yates, Fred W. Frank, J. A. Holt, Oscar Heineman, Chas. F. Peffer, Geo. T. Hutchinson.

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Underwear Mills In Strong Position

While a limited number of small mills are still taking fall orders, the majority of the larger manufacturers of ribbed underwear are completely booked up through October. Worth Street factors told of turning away customers who wanted to increase their original commitments due to unexpected activity among their own customers. The situation on summer lines is not so satisfactory, but here too the outlook has improved; numerous firms are sold up on men's shirts and shorts, to July 1; spot orders are still being accepted on women's wear.

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Asks 35-Hour Week

The wholesaler-retailer price differential issue and labor's demand for shorter hours came unexpectedly into the foreground at the hearing held in Washington May 14, on two proposed amendments to the hosiery code. The

amendments, offered by the Hosiery Code Authority, provided first that wholesalers be removed from the jurisdiction of the code, and second that the Authority be permitted to investigate to determine whether an emergency exists, with the ultimate aim of establishing minimum costs as a minimum price basis. The first proposal developed no opposition. Speaking for the Code Authority on the second proposal, Earl Constantine, executive director, urged its enactment for protection of buyers and sellers alike.

Asserting that the move toward setting price minimums was due to overproduction, Emil Rieve, president of the American Federation of Full-Fashioned Hosiery Workers, proposed an amendment providing for a 35-hour week with a wage minima of $18 in the South and $19 in the North. Deputy Administrator Mark L. Harned, who presided, said all testimony would be taken under advisement and the hearing adjourned.

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Warm May Aids Swimsuit Call

Demand for knitted outerwear which had been delayed somewhat due to the cold spring, picked up decisively last month and the beginning of June found the market in considerably better position. Orders were still well below original expectations, however, and it was doubtful whether even an early hot season would make up for the slow start. Swimsuit contracts were being placed steadily through May in New York and Philadelphia, with caution marking all buying. In certain districts manufacturers and distributors expressed worry that the growing popularity of rubber bathing-suits might cut down this season's volume for these lines in knitwear.

In Philadelphia, manufacturers were given a 44 hour week temporarily by the Code Authority as special privilege to retrieve some of the business lost by the recent strike. Some mill officials there asserted at the end of May that this extra time while helpful, might not last long enough to let them fill all orders. Sweater sales were spirited just before Decoration Day.

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Yarn Men Entertain

George Johnson of Chattanooga was announced winner of the Chattanooga Yarn men's trophy at the banquet Friday night (May 25) which was the closing feature of the two day textile golf tournament staged at the Chattanooga Golf and Country Club. George Blackwell Smith, also of Chattanooga, won the coveted Bob Smith trophy, which must be won three times to become the permanent property of a golfer.

More than 150 textile men including many knit goods manufacturers and those in machinery and allied lines, were present. The tournament attracted men from the East, the Philadelphia district and various other textile sections of the country.

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Tubular Exemption Void

Manufacturers of tubular knitted rayon fabrics who had been exempt from the underwear industry code since Oct. 20, 1933, were ordered to operate under this code, effective immediately, in a ruling June 6, by NRA Divisional Administrator King at Washington. Mr. King indicated that the Underwear Code Authority would investigate whether circular knitters are complying with the code, and report to him by July 5.

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Industry Statistics

Underwear production rose in March but receded in April, according to figures announced by the Bureau of the Census of the Department of Commerce. March orders dropped moderately from February, but preliminary April figures show a decline of more than 50% in new business. Comparative figures by dozens for the three months follow:

Month	Production	Shipments Less Returns	New Orders
February	1,558,979	1,416,031	3,566,791
March	1,935,557	1,756,130	3,402,037
*April	1,893,238	1,503,198	1,382,246

	Machine Activity		
	Feb.—Total 4 Weeks Ending Feb. 17	Total 4 Weeks Ending Mar. 17	*Total 4 Weeks Ending Apr. 14
Total machine hrs. work; knitting machines	2,965,223	3,301,780	3,243,712
Total sewing machine hours work	3,811,261	4,236,842	4,290,048

*Preliminary.

Hosiery productive activity increased considerably in March as against February, according to figures made public last month by the Department of Commerce. Unfilled orders showed a decisive rise, being nearly double those of February; however cancellations rose from 71,700 in February to 200,700 in March. Other figures showing comparison between the two months follow:

	Dozens	Change Since February
March Production—all lines	6,305,000	+14%
March Production—women's full-fashioned	2,222,000	+11%
March Shipments	6,466,000	+24%
March Unfilled Orders	6,031,000	+92%

Knitting Mill News

Franklin Hosiery Co., Inc., Hartford, Conn., has leased a plant at Norwalk containing 30,000 sq.ft. floor space.

Propper-McCallum Hosiery Co., New York, N. Y., is arranging to consolidate all operations in mill at Elmhurst, L. I.

Edward A. Brennan and associates of Newport, N. Y., have plans for a new company to take over and resume operations at the former plant of the McLaughlin Textile Co., in that town.

Standard Hosiery Mills, Alamance, N. C., are building an addition to their saw-tooth knitting mill in which will be installed eight new full fashioned machines. Total cost is said to be $100,000.

Black Mountain (N. C.) Hosiery Mills have installed a number of new 25-step float and wrap machines.

Walton Knitting Co., Hickory, N. C., has completed construction of new one-story mill, 40x140 ft., with dye house and boiler plant.

Elizabeth James Hosiery Mills, Marion, N. C., are expending $25,000 on new machinery and a similar amount on other improvements.

Pine State Knitwear Co., Mount Airy, N. C., formerly on Willow Street, has moved into larger quarters on Virginia Street. Additional knitting machines will be installed.

Old Fort (N. C.) Hosiery Mills, recently organized by Col. D. W. Adams and associates, has taken over local D. W. Adams Building and will remodel and equip for knitting mill, employing about 85. G. C. Stevens, formerly overseer at McPar Hosiery Mills, Marion, N. C., is superintendent.

Gotham Silk Hosiery Co. has moved several of the f.f. machines from its plant at Second and Norris Sts. to the Dover and other Philadelphia plants.

Paragon Knitting Mills, Inc., Philadelphia, Pa., have acquired a two-story building on site, 152x174 ft., on Collom St. near Rubicon St., and will occupy for operations.

Marinette Knitting Mills, Marinette, Wis., will soon begin superstructure for new one-story mill addition, 58x100 ft., for which general contract was let to Theodore Klaver & Son, Marinette, estimated to cost about $25,000.

TEXTILE WORLD'S

Processing Digest

RECOMMENDATION by Gen. William N. Haskell, executive director of the Code Authority for the Rayon and Silk Dyeing and Printing Industry, that the price-control provisions in its code be so modified as practically to eliminate the "control" feature, has implications extending far beyond the confines of that one group—in fact to every codified industry.

The essential facts, as we see them, in this case are: (1) The price-control provisions could not be enforced; (2) firms which lived up to the spirit, as well as the letter, of the code were therefore penalized.

Consequently, it seems necessary in this instance to fall back upon the labor and machinery regulations of the code, in the hope that the higher costs thus created will establish at least a limit below which price-cutters cannot chisel indefinitely. To go further, in this instance, would merely sharpen their chisels.

This experience, in itself, does not determine the unenforceability of provisions designed to prevent below-cost selling. Other groups, differently constituted or differently administered, might have found it both possible and practicable to enforce such provisions if the NRA had not banned them.

Gen. Haskell's recommendation, however, does high-light the impossibility of devising blanket regulations for all industry. Furthermore, it again focuses attention upon the importance of intelligent administration as a factor in the development of any code. His frank statement represents a material contribution to our thinking on this complicated problem.—*Editor.*

General Haskell Hits Price-Fixing in Code

It is a mistake to have any provision in the Code providing for price-fixing or regulation of prices, General William N. Haskell, executive director of the Code Authority for the Rayon and Silk Dyeing and Printing Industry told members of that Code Authority at a meeting held on May 23. In a memorandum submitted to the Code Authority, General Haskell stated his belief that the price-control features were unwise and unenforceable and advocated that a questionnaire be sent immediately to every concern in the industry to secure an expression of opinion as to the advisability of recommending to the National Recovery Administration the elimination of the provisions fixing prices and requiring the installation of a uniform system of cost accounting. The Code Authority for the industry unanimously directed General Haskell to send all members of the industry the questionnaire in order to obtain their views as to whether or not they favor eliminating these mandatory provisions.

In a letter accompanying the questionnaire General Haskell pointed out that it is the intention of the Code Authority still to require the filing of all prices and the prohibition of quoting below these filed prices without notice, but it feels that such price filing should be for information and guidance only. Furthermore, it does not take out of the Code the provision prohibiting sales below cost, but it does eliminate the provision of installing a uniform system of cost accounting. If it becomes necessary to establish cost in any particular instance, it can be determined by the Code Authority at the time.

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Silk Dyers and Printers to Elect New Trustees

Four new members will be elected to the board of trustees of the Institute of Dyers & Printers, which also constitutes the Code Authority for the rayon and silk dyeing and printing industry, when the election is held June 18. The new members will succeed Walter Neale, Apex-Oriental Corp.; Robert Wyder, Textile Dyeing & Printing Co. of America; Michael Clemens, Caledonia Print Works; and Arthur Nazzaro, Uhlig-Prebol Dye Works. These four members were nominated for reelection but have withdrawn their names, and the nominating committee has selected ten new nominees.

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Finishers Curtail 25%

With the exception of equipment running on rayon-warp fabrics, during each of the three consecutive 4-week periods beginning June 4 and ending August 25, cotton finishing machines are to be operated for not more than 75% of the hours otherwise permitted by the Cotton Textile Code. The one exemption noted is due to the fact that finishers of similar fabrics operating under the Rayon and Silk Dyeing and Printing Code are permitted to run the full number of hours permitted by that code. The 25% curtailment was approved by General Johnson, on May 22.

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Oppose Advertising Clause

Opposition to the provision in the rayon and silk dyeing and printing code which prohibited the use of names of retailers, converters and manufacturers in advertising of printers and dyers developed last month, as the outcome of considerable comment in advertising circles. It was reported in late May that a member of the dyeing and printing industry had drafted a letter which he would submit to the code authority, asking reconsideration of this clause. The clause stipulates that all advertising by printers and finishers shall be limited to their own products and their own names.

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Silk Dye Authority to Adjust Claims Over $100

Announcement of the establishment of a claims bureau which will handle all claims of $100 or more made by customers of rayon and silk dyeing and printing firms, was made May 15, by Gen. W. N. Haskell, executive director of the Authority. In explaining the creation of the bureau he said it was made necessary due to the large number of claims, some as low as a few cents and some as high as $5,000. Claims adjusted by the authority's Central Adjustment Bureau have grown from 300 a week in February to 750 in April; more than 800 submitted in the first week of May.

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A.A.T.C.C. Notes

Three technical papers were presented at the spring meeting of the Piedmont Section, American Association of Textile Chemists & Colorists, held in Greenville, S. C., May 19. Alfred R. Macormac, chief chemist, Textile Chemical Products Co., discussed the manufacture and uses of sulphonated oils; Harold Schroeder, chief chemist and superintendent of dyeing, Dixie Mercerizing Co., spoke on the theory of dyeing; and Dr. Eugene R.

Manning, director of textile chemistry and dyeing, Clemson College, outlined the historical development of dyeing and finishing practice. It was announced that the annual outing of the section will be held on June 29, at Blowing Rock, N. C.

At a meeting of the New York Section, held in Paterson, on May 25, General William F. Schohl, assistant to General William N. Haskell, executive director of the Code Authority for the Rayon and Silk Dyeing and Printing Industry, described the difficulties encountered in enforcing the price-fixing provisions of the code and explained the reasons which prompted General Haskell's recommendation that these provisions be eliminated. An election of officers for the ensuing year was held, at which the following were chosen: chairman, Ephraim Freedman, R. H. Macy & Co.; vice-chairman, George L. Baxter, Bradford Dyeing Assn.; secretary, P. J. Kennedy, E. I. duPont de Nemours & Co., treasurer (re-elected) John J. Sokolinsky, Arabol Mfg. Co.

The annual outing of the Philadelphia section is being held June 15, at the Torresdale Golf & Country Club.

•

Cotton Finishers Propose Supplemental Code

The Cotton Textile Industry Committee has prepared a proposed supplemental code for the finishing branch of that industry, it was announced at Washington May 28, and this supplement is the subject of a hearing being held at Washington June 11. The proposed code covers trade practices exclusively, the chief subjects being commercial bribery, secret rebates, false invoices, the enticing of employees in the service of a competitor, the defaming of competitors, and the giving of gratuities with the aim of influencing a customer to execute a contract for finishing services.

•

Study Silk Weighting From Consumer Angle

Methods of classifying and marking weighted silks are the subject of a study undertaken by a special committee of technical experts of the National Federation of Textiles, Inc. This committee was appointed to study silk weighting from the consumer angle and has arranged various conferences with dyers and printers to gather the necessary data.

•

Form Credit Bureau for Silk Dyeing Industry

A credit interchange service for the rayon and silk dyeing and finishing industry has been organized under that trade's code, and offices have been taken in the Empire State Building, New York, it was announced May 28, by Gen. Wm. N. Haskell, executive director of the code. Aleck A. Smith, executive director of the Silk and Rayon Credit Assn., will be in charge of the installation and supervision of the service, which will include exchange of information on the credit standing and practices of dyers' customers. The service provides for regular clearances of past due balances throughout the trade and records will be kept of all unfair claims.

•

Silk Dyer-Converter Contract to Be Revised

Progress toward more amicable relations between converters in the uptown New York silk and rayon fabric market and dyers and printers serving this branch was being made during May. The specific step in this direction was the decision of the Code Authority for the rayon and silk dyeing and printing industry and the converters' group to appoint a committee which would cover all points at issue. The committee aims to establish an equitable basis for adjusting future disputes and to make revisions in the current contract which would be satisfactory to both sides. Edmund Wright, president and executive director of the Textile Converters Association of America, Inc., said the outlook was good for the elimination of the existing difficulties.

•

Textile Processing Budget Filed

The budget covering cost of administering the textile processing industry code was filed with the NRA last month; it totals $88,520. The basis of contribution would be ⅜ of 1% of gross charges for processing performed during the calendar year of 1933.

•

"Soapless Soaps"

"Soapless soaps," new products made from natural fats or oils by reducing the fatty acids to the corresponding fatty alcohols, were described in detail by Samuel Lenher, Organic Chemicals Department, E. I. DuPont de Nemours & Co., in an address last month before the American Institute of the City of New York. These new soaps have various important characteristics, Mr. Lenher said, and he specified two advantages, namely the fat alcohol sulphates or new soaps form soluble salts in hard water so that the ring around the bathtub, and the graying and dulling of textile fabrics due to the gray soap curds in hard water are both eliminated.

•

The H.C.L. in the NRA

Protesting that the budget of $176,000 submitted by the silk and rayon dye code authority for code administration is exhorbitant, independent dyers prepared a petition last month asking that the annual budget be limited to $25,000. The protest group was represented by S. Emanuel Shavick, counsel for the smaller dyers and printers. It was argued that while legal fees are legitimate there was no need for additional counsel. Following the protest, General Haskell recommended that the budget be reduced by about 50%.

•

Rug Processing Code Approved

The code of fair competition for the rug chemical processing trade has been approved by the National Recovery Administration. The rug chemical processing industry is a highly specialized division being limited to nine firms all located in or near New York City.

•

Finishing Plant News

Cretona Print & Dye Works, Clifton, N. J., plans rebuilding of portion of mill recently damaged by fire. Loss was about $16,000.

Gaston Processing & Mfg. Co., Gastonia, N. C., recently organized to take over mill of the Gaston Mfg. Co., Cherryville, N. C., is carrying out a remodeling and improvement program in plant, equipment, and employes' dwellings. The mill has been idle for about four years and will be placed in service by new company at early date. O. G. Morehead will be an official of company and superintendent.

United States Finishing Co., Providence, R. I., has awarded contract to A. F. Smiley Construction Co., Pawtucket, R. I., for repairs to its manufacturing plant on Charles Street.

Dominion Silk Dyeing & Finishing Co., Ltd., Drummondville, Que., has completed the installation of machinery and equipment for dyeing and finishing of all classes of wool and worsted piece goods.

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TEXTILE WORLD'S

Engineering Digest

EACH issue of TEXTILE WORLD contains departments devoted specifically to the six major divisions of the industry. Thus we have the Cotton Digest, Wool Digest, Rayon Digest, Silk Digest, Knit Goods Digest, and Processing Digest.

Commencing with this month's issue, we add a seventh, the Engineering Digest, the field of which cuts across those six branches.

The new department is designed to cover technical and news developments in power, engineering, maintenance, and repair. No executive, no department-head, can fail to be concerned with these phases of textile mill management. In addition, the engineering and mechanical departments have a specific and professional interest in them.

From all these groups, we invite frank suggestions for the conduct and improvement of this new department.—*Editor.*

Economical Flexibility in Motor Drives

The extent to which modernization of power transmission can or cannot be considered an economical investment is illustrated by two studies recently made in a textile mill by Alfred Kullman, of the Mechanical Power Engineering Associates. In one case it turned out that, by using group drives, a considerable amount of flexibility would be gained without a large expenditure, while in the other case the savings made possible by being able to shut down part of the equipment were not sufficient to justify the investment.

The first study covered a weave room where 198 looms were being run by two 720-r.p.m. motors. The manufacturer wished to secure greater flexibility, but the cost of individual motor drives was a stumbling block. A plan was finally worked out where eleven 10-hp., 1,200-r.p.m., motors would drive eleven groups of eighteen looms each. The initial investment, including putting anti-friction bearing boxes in the hangers, was figured to be $7,435. A flexible arrangement could thus be worked out at a cost approximately one-third that required for individual motor drives.

The other case covered the modernization of drives in the drawing and spinning departments. In one drawing operation it was planned to substitute five 20-hp. motors for one 100-hp. motor. In the next operation, four 20-hp. motors would replace one 75-hp. motor. In the spinning department, it was planned to replace five motors, totaling 610 hp., by 15 motors totaling 460 hp. Under the new plan, each set of drawing frames would be on an individual motor and each five or six spinning frames. Total cost of the new plan was estimated to be $20,734. In computing the savings in power consumption possible under the modernized layout, due to flexibility, it was first figured that production schedules would call for one out of four of the new motors being shut down. Taking the cost of generating power and multiplying by the kilowatt-hours saved, it was found that $687 would be saved annually. Even with the plant operating only 50% the saving would be only $1,374, and it was obvious that such a return did not justify the original investment.

•

Plans for Power Show Start Unfolding

Plans are already being developed for the Eleventh National Exposition of Power and Mechanical Engineering, which will be held at Grand Central Palace, New York, Dec. 3 to 8. During the same week, the annual meeting of the American Society of Mechanical Engineers will take place.

A feature of the exposition is expected to be the extent to which dynamic or graphic display will replace the old method of static display. Exhibitors, instead of merely presenting a mechanism in a static condition, are making every effort to have the mechanisms in operation, or, where this is impossible, to present salient features graphically in a concise and dramatic fashion. The increased use of such methods not only adds interest, but offers technical advantages.

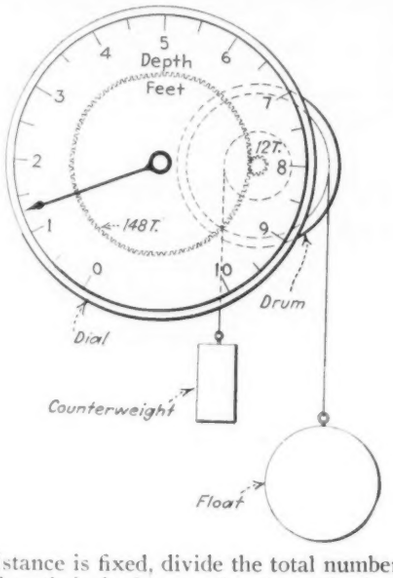
Among the classes of equipment to be shown are the following: power generation and distribution, engines and auxiliaries, electrical equipment and elevators, boilers, pumps, air compressors, and refrigeration equipment; also such auxiliaries as piping and valves, precision instruments, materials-handling machinery, fire-protection equipment, metals and metallurgy, and ceramic materials.

•

How Deep is the Water?

The problem is to indicate the depth of water in a tank by means of an indicator-hand at the end of a driven shaft. Suppose we have the following conditions: depth of water in tank, 10 ft.; center distance between gears, 2½ in.; diametral pitch of proposed gears, 32; approximately 300° of the 360° on the dial to be used for the scale; float attached to drum 1 ft. in circumference, to which is attached the pinion gear. The diagram shows the set-up.

A rule to follow is: when the center



distance is fixed, divide the total number of teeth in both gears by the ratio + 1 and the quotient will be the number of teeth in the pinion.

Using our figures we have:

2 (gears) × 2½ in. (center distance) × 32 (diametral pitch) = 160 (total number of teeth).

Let X equal the ratio of gears. Then, since the number of revolutions of the drum equals 10,

$$10X = \frac{300}{360}, \text{ or } X = \frac{1}{12}, \text{ a ratio of 12.}$$

Substituting in our rule and disregarding fractions,

$$\frac{160}{12+1} = 12 \text{ teeth in pinion and}$$

$160 - 12 = 148$ in driven gear.

Since we have disregarded the fraction $\frac{4}{13}$ in the above, the actual number of degrees on the dial would not be 300°, but:

$$\frac{10 \times 12 \times 360^\circ}{148} = 291.89^\circ$$

JOHN T. GIDDINGS.

Coal Classification Getting Hot

For more than a century producers and consumers have struggled with the problem of classifying coal, and for the last seven years a representative committee, under the direction of the American Society for Testing Materials, has been hard at work. Tangible results have now appeared. According to *Industrial Standardization*, the committee has recently approved tentative specifications covering the classification of coal by rank and by grade, and formal acceptance by the A.S.T.M. and approval by the American Standards Association are anticipated.

In classifying coals according to rank (rank being the place in the natural series from lignite to anthracite), the basis is according to fixed carbon and calorific value (expressed in B.t.u.) calculated to the mineral-matter-free basis. The higher-ranking coals are classified according to fixed carbon on the dry basis; the lower-ranking, on the moist basis. Agglutinating and slacking indices are used to differentiate between certain adjacent groups.

The tentative specifications covering grade classify coals according to quality, as determined by calorific value, ash and sulphur content, and ash-softening temperature.

•

Improved Machine Design Affords Controlled Lubrication

Recent improvements in textile machinery design which afford controlled methods of lubrication are discussed at length in the June issue of *Lubrication*, published by the Texas Co. Among these developments which prolong the life of the equipment, reduce the danger of oil stains, and increase mill efficiency, particular emphasis is placed on antifriction bearings, sealed bearings, waste-packed bearings, and externally located bearings for agers. The article considers the properties of lubricants needed for various types of modern textile machinery and recommends the grades of oil or grease to be employed in a number of specific applications.

•

Gas-light, but Not Our Old Friend

The biggest improvements in the lighting industry must come from the light produced in gas and vapor discharges, although the rugged and simple incandescent lamp is not likely to be displaced on a very large scale, according to Dr. Harvey C. Rentschler, director of research, Westinghouse Lamp Co., in commenting recently on various metallic-vapor illuminants demonstrated before the Illuminating Engineering Society, New York.

As an example of what is going on, we quote Dr. Rentschler:

"The nearly perfect light obtained by passing an electric charge through carbon dioxide gas makes this source of illumination particularly desirable for color-matching work, as in printing plants, textile mills, etc."

Dr. Rentschler added, however, that the present operating efficiency of such a lamp is only about one-third that of the standard incandescent. As to the general future of gaseous-vapor lights, he said that the demands of the human eye would have an important influence in lighting for years to come, particularly with respect to visual acuity, or the speed with which one sees an object.

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Engineering Mill News

Alabama Hosiery Mill, Decatur, Ala., has completed the installation of an air conditioning plant manufactured by Parks-Cramer Co. An addition, erected on the east side of the main building, houses the central station in which the air is washed, humidified and brought to the desired temperature. The system is powered by three motors, one of 30 hp., one of 15 hp. and one of 2 hp.

Greensboro (N. C.) Full-Fashioned Hosiery Mills, Inc., has let a contract to Angle-Blackford Co. to install a humidifying system and other equipment at a cost of $3,000.

Springs Cotton Mills, operating plants at Chester, S. C., Baldwin, Eureka and Springstein, are constructing a steam-electric plant and upon completion will use Chester city water, whereas in the past they have used water from deep wells.

Dominion Textile Co. Ltd., Magog, Que., will complete extensions to its steam generating plant in August. The work has been planned by the company's engineering staff in conjunction with T. Pringle & Sons, Ltd., consulting engineers, Montreal. It includes a boiler house of brick and steel, 75x47 ft. and a coal shed 95x30 ft. Two 500 hp. steam boilers will be installed and a chimney 160 ft. in height, erected.

West Point Mfg. Co., Fairfax, Ala., is constructing 12 dwellings to cost approximately $12,000. The Langdale, Ala., plant is planning an 18-room apartment house, and the Lanett, Ala., unit is building nine new dwellings.

Ponemah Mills Co., Taftville, Conn., is selling the 200 dwelling houses in its mill village to their present occupants, according to W. F. Staples, general manager.

Roanoke Mills Co., Roanoke Rapids, N. C., has completed the work of painting both plants inside and out.

Hannah-Pickett Mills, Rockingham, N. C., have completed 40 new homes for operatives, rented additional homes in the old Midway and Great Falls villages and repaired old homes of the Hannah-Pickett village.

Entwistle Mfg. Co., Rockingham, N. C., has purchased several residences in the Midway Mill village for $10,000. In addition to the houses there are two tracts of land, one 36.2 acres and the other 15.10 acres. In conjunction with Hannah-Pickett Mills, Entwistle has also constructed a ball park and grand stand.

Hermitage Cotton Mills, Camden, S. C.—The Hermitage mill pond of 1,000 acres which drained when the dam went out several years ago will be restored by the Federal Relief Administration.

Springs Cotton Mills, Kershaw, S. C., have constructed a ball park and grand stand.

Spofford Mills, Inc., Wilmington, N. C., has constructed a grandstand and concrete swimming pool, 25x75 ft., at a cost of $5,000, for the use of the operatives.

Eureka, Baldwin and **Springstein** units of **Springs Cotton Mills,** Chester, S. C., are replacing well water system with a main line to the city water supply.

QUOTATIONS

At close of business, June 1, 1934

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*June 1	*May 1	1933 June 1
PRINT CLOTHS			
27 -in., 64x60, 7.60	4⅛	4⅛	4
38½-in., 64x60, 5.35	6¼	6⅜	5½
39 -in., 68x72, 4.75	7¼	7⅜	6⅝
39 -in., 72x76, 4.25	8⅛	8¼	7⅛
39 -in., 80x80, 4.00	8¾	8⅞	7½
BROWN SHEETINGS			
36-in., 56x60, 4.00	7⅜	7¼	6¼
36-in., 48x48, 5.00	5¾	6⅛	5
37-in., 48x48, 4.00	6¼	6¼	6⅛
MISCELLANEOUS			
Drills, 37-in., 3 yd.	9¼	9½	7½
Denims, 2.20	15½	15½	11½
Tickings, 8 oz.	18	18	12
Standard prints	7¼	7½	6½

*Tax included.

Cotton Waste

Peeler comber	12.25
Peeler strip	11.25
White spooler (single)	6.00
Linters (Mill Run Average)	5.50

Cotton Prices

Spot Cotton at:	June 1	May 1	For Month High	For Month Low	1933 June 1
New York	11.80	10.75	11.70	10.75	9.25
New Orleans	11.76	10.85	11.65	10.85	9.10
Liverpool	6.26	5.85	6.32	5.85	6.28

FLUCTUATIONS OF FUTURES

	Closed June 1	For Month High	For Month Low	Closed May 1	Net Change
July	11.64	11.56	10.74	10.74	+1.00
Aug	11.72	11.61	10.79	10.79	+0.93
Sept	11.79	11.67	10.85	10.85	+0.94
Oct	11.87	11.73	10.91	10.91	+0.96
Nov	11.93	11.79	10.96	10.96	+0.97
Dec	11.99	11.86	11.01	11.01	+0.98
Jan	12.04	11.90	11.06	11.06	+0.98
March	12.14	12.00	11.17	11.17	+0.97
May	12.23	....	....	....	....

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	14.39	15.64
1 3/16-in.	15.89	17.39
1¼-in.	19.14	21.14

Based on July 11.64.

FOREIGN COTTONS

Alexandria Exchange, June 1

July, Sak.	16.21
Aug. Uppers	11.74
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak.	26.50
Medium Uppers	22.40
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	10.25
China Tientsin No. 1	13.50

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Where figures for dates earlier than Aug. 1, 1933, are given for comparison, such figures of course do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.25½	20s	$0.29
10s	.26	24s	.31
12s	.26½	26s	.32
16s	.27½	30s	.34

TWO-PLY SKEINS AND TUBES

8s-2	$0.26	20s-2	$0.29½
10s-2	.26½	24s-2	.31½
14s-2	.27½	30s-2	.34½
16s-2	.28	40s-2	.40½

SINGLE WARPS

10s	$0.26½	20s	$0.29½
14s	.27½	24s	.31½
16s	.28	30s	.34½

TWO-PLY WARPS

8s-2	$0.26½	20s-2	$0.30
10s-2	.27	24s-2	.32
14s-2	.28	30s-2	.35
16s-2	.28½	40s-2 ordin.	.41

HOSIERY CONES (Frame Spun)

8s	$0.26	18s	$0.28½
10s	.26½	20s	.29½
12s	.27	22s	.30½
14s	.27½	24s	.31½
16s	.28	26s	.32½

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.38½	50s-2	$0.51
30s-2	.43	60s-2	.57
40s-2	.46½	80s-2	.76

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.39	50s-2	$0.52
30s-2	.43½	60s-2	.58
36s-2	.46	70s-2	.68
40s-2	.47	80s-2	.78

SINGLES

14s	$0.34	38s	$0.43½
20s	.36½	40s	.44½
28s	.39	50s	.49½
30s	.40	60s	.56½

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.51	60s-2	$0.70
40s-2	.56	80s-2	.95

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.46	$1.27	$1.18
Grand XX, 83%	1.34	1.24	1.16
Special Crack, 81%	1.25	1.21	1.14
Crack XX, 78%	1.21	1.19	1.12
Extra, Extra, 73%	1.18	1.16	1.10
Best Extra, 68%	1.15	....	....

RAW SILK EXCHANGE

	June 1	May 1	For Month High	For Month Low	Net Change
July	1.20½	1.22	1.26	1.20	—0.01½
Aug	1.21½	1.22	1.27	1.22	—0.00½
Sept	1.22½	1.22	1.27½	1.22	+0.00½
Oct	1.22½	1.22	1.27½	1.22	+0.00½
Nov	1.22½	1.22½	1.28	1.22	....
Dec	1.22	1.22	1.28	1.22	....
Jan	1.22	....	....	....	....

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.12½
Hosiery tram, 5thd. crack XX, 78%	1.92½
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.17

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.31–$0.33	⅜ blood	$0.32–$0.33
Fine clthg	.27– .28	¼ blood	.31– .32
½ blood	.30– .31		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.81 –$0.82
California, Northern	.70 – .75

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.83 –$0.85
Staple ½ bld.	.81 – .82
Fine and fine medium (original bag)	.79 – .81
⅜ blood	.76 – .78
¼ blood	.70 – .72

EASTERN SCOURED PULLINGS

A.A.	$0.85 –$0.90	B-Super	$0.68 –$0.73
A-Super	.75 – .80	C-Super	.60 – .62

CARPET WOOL (Nominal)

Aleppo (clean)	$0.20 –$0.23
Sining	.13 – .17
China filling (clean)	.12 – .16

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.10 –$1.12
Half-blood (60-62s)	1.03 – 1.05
Aver. ⅜ blood (56s)	.93 – .95
½ blood (50s)	.85 – .87

NEW YORK TOP FUTURES

	Closed June 1	For Month High	For Month Low	Closed May 1
July	88.10	96.00	88.10	92.00
Aug	88.20	96.30	88.20	92.50
Sept	88.60	96.70	88.30	93.00
Nov	89.50	97.30	88.50	94.00
Jan	90.00	97.70	88.70	94.40

TOPS—BRADFORD ENG. (June 1)

Fine (64s)	34½d	⅜ bld. (56s)	24½d
½ bld. (60s)	32½d	¼ bld. (50s)	18 d

NOILS—BOSTON

Fine	$0.51 –$0.53	⅜ bld.	$0.44 –$0.46
Half bld.	.48 – .50	¼ bld.	.40 – .43

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$1.17½–$1.20	2-36s 58s	$1.55 –$1.57½
2-30s 46s	1.27½– 1.30	2-40s 60s	1.57½– 1.60
2-30s mixes	1.60 – 1.65	2-50s 64s	1.75 – 1.80

ENGLISH SYSTEM KNITTING

2-20s 44s	1.12½– 1.15	2-20s 60s	1.37½– 1.40
2-20s 50s	1.15 – 1.20	2-20s 64s	1.40 – 1.45

FRENCH SYSTEM

1-26s 64s	$1.42½–$1.45	2-40s 64s Zephyrs	$1.62½–$1.65
1-30s 64s warp	1.47½– 1.52½	2-50s 66s	1.80 – 1.85

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.15	150	24–40	$0.55
75	30	.90	150	60	.60
100	40	.75	300	44	.45
125	36	.62			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$0.95 –$1.00	150	$0.60
100	.80 – .85	175	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.20	100	$0.85 –$0.90
55–65	1.15	120	.70 – .80
75	1.00	150	.65 – .75

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.50	100	75	$0.80–$0.90
75	60	.95–$1.05	150	112	.65– .75